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ORNAMENTAL HIBISCUS IN HAWAII.

BY

E. V. WILCOX,
Special Agent in Charge,

AND

V. S. HOLT,
Assistant in Horticulture.

UNDER THE SUPERVISION OF
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[Under the supervision of A. C. True, Director of the Office of Experiment Stations, United States Department of Agriculture.]

WALTER H. EVANS, *Chief of Division of Insular Stations, Office of Experiment Stations.*

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LETTER OF TRANSMITTAL

HONOLULU, HAWAII, *July 1, 1913.*

SIR: I have the honor to submit herewith and recommend for publication, as Bulletin No. 29 of the Hawaii Agricultural Experiment Station, a manuscript entitled Ornamental Hibiscus in Hawaii, prepared jointly by myself and Mr. V. S. Holt, assistant in horticulture. There is quite a general interest in the growing of hibiscus as a hedge and ornamental plant not only in Hawaii but in other tropical and subtropical regions. A considerable number of species have been brought together for study and a large number of hybrids have been produced, some of which appear to possess superior merit. The methods of culture, directions for hybridizing, and some of the hybrids are described at length.

Respectfully,

E. V. WILCOX,
Special Agent in Charge.

DR. A. C. TRUE,
*Director Office of Experiment Stations,
U. S. Department of Agriculture.*

Publication recommended.
A. C. TRUE, *Director.*

Publication authorized.
D. F. HOUSTON, *Secretary of Agriculture.*

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Ornamental Hibiscus in Hawaii.

INTRODUCTION.

For many years there has been a growing interest in hibiscus in Hawaii. Several admirers of this ornamental plant in their travels about the world have lost no opportunity to secure desirable varieties of hibiscus for planting. At least thirty-three varieties have been brought from other regions to Hawaii. These forms, together with the eight or more species native to Hawaii, have furnished excellent stock from which to obtain numerous forms which we now have as the result of crossing.

One point in favor of the use of hibiscus as an ornamental plant, either in hedges or as individual plants, is the fact that it is relatively free from serious insect pests and fungus diseases. In a region where the attacks of insects are likely to bring about a ragged condition of the foliage this relative immunity is an important point to consider. The work which this Station has done with ornamental hibiscus began in June, 1909, and has been carried on continuously since that date. The growing demand from the military posts about Honolulu and from private individuals in Honolulu and elsewhere in Hawaii for cuttings, has made it necessary to have a large variety of hibiscus from which to select cuttings for distribution. The Station has distributed upon request about 100,000 hibiscus cuttings, and the demand for this ornamental plant is growing from month to month. As a further evidence of the interest taken in hibiscus in Honolulu it may be mentioned that a hibiscus society was formed in 1911, with the object of studying the forms of hibiscus which are now to be found in Hawaii, stimulating interest in the more desirable varieties and calling attention to the possibility of obtaining these for ornamenting gardens and grounds.

SPECIES OF HIBISCUS IN HAWAII.

As already indicated there are a number of native species and introduced species or forms of hibiscus in Hawaii, which have served as a basis of hybridization in multiplying available varieties of hibiscus. Not all of the native species of hibiscus in Hawaii can be used in crossing; with some of them no success has been had in crossing, although numerous attempts have been made.

Hibiscus arnottianus is a native white species which occurs under

several forms quite distinct, at least from the horticulturist's standpoint. These forms are commonly called Tantalus white, Waianae white, Punaluu white and Nuuanu white. *H. weimeae* occurs on Kauai while the last named species is chiefly confined to the Island of Oahu.

H. weimeae is also a native species with pure white flowers, and occurs under at least three forms, referred to as Knudsen white, Rice white and Lydgate white. The form referred to as Molokai white is apparently an undescribed species. The flower is pure white throughout, showing no crimson even on the column, and the characters of the leaves, bark and flower indicate that this form is distinct from the other native species of white. *H. kokio* occurs on nearly all of the Islands in a number of forms which are known as Oahu red, Hakalau red, Molokai red, Kipu red and Kawaihapai red. *H. kahili*, described by C. N. Forbes from trees found on Kauai, is a large tree with rough leaves and calyx, and flower characters which distinguish it from *H. kokio*. Two other forms of native red hibiscus, one with a crimson-pink flower and another with an orange-scarlet flower, occur on Kauai. The orange-scarlet form has leaves, calyx, bracts and stigmas, all of which differ decidedly from the other forms of red found on Kauai. All of these native white forms, with the exception of the Waianae white, are fertile in crossing with other species and varieties of hibiscus. *H. brackenridgei* is a native hibiscus with sulphur-yellow flowers, which will not cross with other forms of hibiscus so far as may be judged from the numerous experiments which have thus far been made. The same may be said for *H. youngianus* and *H. tiliaceus*.

The species and forms thus far mentioned are native to Hawaii. Among introduced species there are at least four in common use, three of which have been extensively used in hybridizing. *H. rosasinensis* is the species to which the vast majority of cultivated hibiscus is related. *H. schizopetalus*, commonly known as the coral hibiscus, has been used in many crosses as a male parent. The Narrow Petal white is a distinct species of hibiscus introduced from Fiji, which readily crosses with the other forms of hibiscus in Hawaii. *H. mutabilis* is widely cultivated in Hawaii for its white flowers which crimson during the day, but has not been used successfully in crossing with other forms of hibiscus.

GENERAL CHARACTERISTICS OF HIBISCUS FLOWERS.

The flower of hibiscus is arranged on the plan of fives. In all single flowers of hibiscus there are five petals, separate to the base, or nearly so; five stigmatic branches of the long style; five cells in the ovary; five teeth on the limb of the calyx; and in some of the simpler flowers five or ten involucre bracts. The same statement is true for double

flowers, except that in double flowers the staminal column is modified into an indefinite and usually large number of petals. In all species and varieties of hibiscus in Hawaii, with the exception of the native white and coral hibiscus, the petals are united with the column for only a very short distance, usually not more than one-quarter inch above the ovary. In the native white and coral flowers the petals are united with the column for a length of an inch or more. This is also true with all the crosses in which native whites and coral are used as one parent. In the descriptive list of hibiscus given in this bulletin the term column is used to mean the staminal column. The filaments of the column in the hibiscus flower are united into a hollow sheath for the greater part of their length, standing out separately from the column along the terminal one-third or more of the column. The staminal column ordinarily ends in five-minute teeth. The style carrying five stigmatic branches and five stigmas runs through the whole length of the staminal column and protrudes beyond the end of the column from one-fourth to one-half inch, or occasionally more. In one hybrid the stigmas even fail to protrude beyond the staminal column, or barely reach the terminal opening.

HYBRIDIZING HIBISCUS.

The procedure observed in crossing hibiscus is quite similar and is essentially the same as followed with other species of plants. In order to be certain of the purity of a cross it is essential that the flower on the plant which is to be the female parent should be emasculated the night before the morning when it is to open, and kept enclosed in a pollen-proof bag until the pollination is performed the following morning, after which it has to be kept enclosed in a bag for a day or two until the stigmas have wilted, or have become incapable of receiving pollen carried by wind or insect. This procedure is strictly necessary in all varieties of hibiscus which are free-seeding. It is an easy matter to tell by the appearance of the buds in the afternoon which ones are to open the following morning. In selecting one for a female parent the petals are cut away with scissors so as to allow the easy removal of the unopened anthers. The flower is then tied in a bag, as just mentioned, which is not removed except while the pollen from the male parent is thrust upon the stigmas the following morning, after which the bag is replaced and kept in position until danger of cross pollination is past. In varieties which do not seed without artificial help emasculation of the flower of the female parent is not strictly necessary.

In most varieties both stigmas and pollen must be dry when used in crossing, otherwise fertilization may not take place. In certain other varieties, particularly the Nuuanu white, the stigmas must be

moistened before the pollen will germinate and penetrate through the style. In crossing hibiscus the pollen may be applied at any time from sunrise until noon.

Apparently the first hybridization of hibiscus in Hawaii was done by W. M. Giffard, in 1902. His work was limited to four crosses, from which a number of seed were obtained, which in turn produced several distinct types of hybrid plants. Other persons interested in hibiscus soon gave attention to hybridization and have continued to make crosses which promise to give new flowers, with the result that we now have an unusual variety of hybrid forms of hibiscus. The list of those who have contributed most to our hybrid forms, and who have been most successful breeders of hibiscus, includes V. S. Holt, G. P. Wilder, C. M. Cooke, A. Gartley, J. A. Cummins, Mrs. Grace Rice, J. W. MacNeil, Mrs. T. J. King, Miss Josephine Soper, and W. Rosa. Some of these breeders of hibiscus have also been instrumental in introducing promising varieties from other parts of the world. Other introductions of hibiscus have been made by J. D. McInerny, S. M. Damon, Mrs. C. L. Wight, Mrs. E. D. Tenney, A. S. Cleghorn, and A. Koebele. As near as can be determined from the present record about one thousand crosses have been made by the persons named in the above list of breeders, of which about five hundred were made by V. S. Holt.

CULTURE OF HIBISCUS.

After natural or artificial pollination the seeds in the capsule ripen within five or six weeks. These seeds may then be planted as soon as dry, or, if desirable, may be kept for several months, since they hold their vitality for a considerable period. It is always desirable to plant all of the seed which form in a capsule after cross pollination in order to get as large a number as possible of hybrid seedlings from which to make selection for further use. The amount of variation among seedlings from the same seed pods is very great, and this variation involves all the important characters of the plant, such as habit of growth, characteristics of foliage, color and size of flower. Striking instances of this variation will be found by consulting the descriptive list at the end of this bulletin, in which a number of conspicuous cases are shown.

Seeds of hibiscus are usually planted in pots and covered about one-fourth inch deep in coral sand which forms a layer about one inch deep upon the potting soil. The seedlings commonly reach a height of two inches within one month and may then be transplanted to pots, one in each pot. A month later, or when the plants are four or five inches in height they are again transplanted outside in the places where they are to be grown. Seedling plants under

ordinary conditions may be brought into flowering within about nine to twelve months from the planting of the seed.

Since there is always some variation in plants grown from seed, it is often desirable to propagate hibiscus from grafts of cuttings, in order to be sure of perpetuating the particular characters which have been developed in some hybrid form. Cuttings are best taken from fairly well matured wood one-half to one inch in diameter. The best diameter of wood for cuttings is one-half inch. Cuttings should preferably be made five inches long, and planted three inches deep in sand. The cuttings may be tied in bundles of about 100 for convenience of handling. About 95 per cent of cuttings prepared in this way will root in about one and one-half months, and may then be transplanted into pots or directly into the garden. While the cuttings are in sand in the process of callousing and rooting they need abundant sunshine and frequent watering; the sand must be kept moist about the base of the cuttings in order to secure a high percentages of successful rooting. Cuttings planted in the garden after rooting will come into flower in about six or seven months.

Grafting offers the most rapid method for obtaining flowers from desirable plants. Grafting has given considerably better results than budding, in that a more symmetrical and profuse branching is obtained from grafting than from buds. Grafts from good stock will come into flower in about three and one-half months.

Hibiscus may be grown either in the form of a hedge or as individual plants. The width of space depends upon the varieties which it is desired to use, upon the richness of the soil, the amount of rainfall, which determine the vigor of the growth of plants. The habit of growth of the different varieties when allowed to develop without pruning differs greatly. In size the varieties range from low, dwarf shrubs to tall trees of whip-like growth. These features of the growth of hibiscus must, of course, be considered in spacing the plants in a regular garden devoted to hibiscus, or in growing hedges of these plants. Whenever it becomes desirable to prune hedges it is necessary to water the plants at once after pruning, in order to get a prompt growth of new shoots of sufficient vigor to produce flowers of full size, and to withstand the attacks of plant lice which are particularly serious upon new growth.

Hibiscus blooms practically the year round, but the flowers are best after heavy rains. The season of abundant blooming may thus come in February, March, April and even in August, if heavy summer rains should have occurred in July. Nearly all hibiscus flowers open in the early morning. Some of the white forms open from 9 a. m. until noon. *H. brackenridgei* opens only late in the afternoon. In the majority of varieties the flowers close at sundown of the first day, and are therefore one-day flowers. In a much

smaller number of varieties the flowers persist for two and rarely three days. Most varieties, as will be observed by consulting the descriptive list at the end of this bulletin, are not self seeders, while there are a few varieties which seed very freely. In hybridization the habit of not self-seeding is of considerable importance, since it renders extreme precautions unnecessary to prevent promiscuous cross fertilization. Of the double varieties only the large Double Red, Carnation and Fijian semi-double can be made to form seed, but most varieties, with the exception of Fijian Double Yellow, Double Salmon and Fijian Double Crimson may be used as male parent. Some varieties are completely sterile toward other varieties, and therefore cannot be used either as male or female parent in crossing. (412:2 V. S. H., *H. brackenridgei*, *H. youngianus*, and *H. mutabilis*.)

CHARACTERISTICS OF HIBISCUS OF INTEREST TO BREEDERS.

While work in the hybridization of hibiscus in Hawaii has not yet been carried through a sufficient number of generations to determine precisely how the various characters will split up or recombine in heredity, there has been much evidence gathered of the dominant characters of certain parents which are almost certain to appear in the hybrid offspring. Nearly all of the characteristics of growth, foliage, and flowers must be considered by breeders in making the selection of parents, in order to be able to surmise something of the characters which will appear in the offspring.

The habit of growth of different forms of hibiscus varies enormously. As already indicated in the point of size alone they vary from small dwarf shrubs to trees thirty or forty feet in height. In the habit of branching hibiscus varies from densely tufted shrubs to long whip-like growth with very sparse lateral branches. The arrangement of the leaves also varies greatly. In some forms most of the foliage is grown near the tips of the twigs, while the rest of the wood is naked. Others are densely covered with foliage throughout.

The leaves vary within wide limits in all of their chief characteristics. Some of the forms are rough, hairy; while others are softly pubescent, and still others perfectly smooth and shiny. In thickness and firmness of texture there is an enormous amount of variation; likewise in the size, depth of green, length of petiole, position on the twigs and in margin. In shape the leaves on different varieties of hibiscus vary from linear through lanceolate and ovate forms to the orbicular shape. The margins vary from entire through various degrees of crenation, serration, dentation, to deeply incised, three-lobed or completely three-divided forms. The leaves on young growth

are naturally much larger than on old wood, and show a greater tendency to division into three or five lobes.

The general appearance of the flower depends very much upon the width of the petals. In flowers with narrow petals intervals of greater or less width are left between the outer parts of the petals; while in some of the varieties with wider petals the petal space covered by the expanse of the flower is almost an uninterrupted area. There are three general types of shape assumed by hibiscus flowers. The coral hibiscus and all of the hybrids from this parent have more or less recurved petals, with wavy scalloped edges. In *H. brackenridgei* also the petals are shortly recurved from near the base. In the majority of the four hundred or more varieties which have been studied, the flower when fully opened is salver-form. In flowers which last two days the petals are quite commonly recurved during part at least of the first day, and later bend forward so as to lie at right angles to the column. In a considerable number of varieties the flowers remain funnel shape until they wilt.

The form of the petals varies from linear in the narrow petal white to decidedly obovate in the Knudsen white and in the majority of other varieties. In width this variation may be from half inch to two and half inches or even more; in length from an inch to five inches.

So far as observations have been made there are not many cases of correlation in the characters of hibiscus. As a rule when the trunk and main stems have a dark colored bark the twigs are green, while when the bark of the older wood is light in color the twigs are reddish or brown. The petals in the hibiscus flower are always convoluted in the bud. The edge of the petal which is outside as folded in the bud is almost invariably of a different color from the remainder of the back surface of the petal. Usually this overlapping edge of the petal is colored yellow or white. The examination of several hundred varieties showed that yellow is more common than white, occurring in the ratio of seven to four. On the face of the petals there are in most varieties distinct veins, usually darker than the ground color of the petals. The occurrence of darker and paler veins is in the ratio of two to one. Almost without exception one edge of the inside of the face of the petal is colored differently from the other edge; this is the edge which overlaps outside in the bud. In more than 75 per cent of the varieties examined there is a distinct eye of decidedly darker color than the rest of the petal. This eye varies in width from a half inch to nearly three inches. The deep color of the eye may extend farther out on the petals into the veins, leaving lighter areas between the veins. In many varieties there is a distinct band of lighter color immediately surrounding the eye, gradually shading off into the ground color of the petal. A

number of varieties have a pure white throat and pink veins, but ordinarily where the throat is white the veins are also white.

The staminal column is an important feature of the beauty of hibiscus flowers. This varies in length from one and half inch to six inches, or more, and has in different forms a greater variety of color than is shown by the petals. The column may be quite smooth throughout, or may be distinctly pubescent, the hairs in the native white forms being crimson in color. As a rule the filaments are arranged on the outer one-third of the column and vary greatly in length, being sometimes more than an inch long, while in *H. brackenridgei* and a few other varieties the anthers are almost sessile.

The stigmas are as a rule large and decidedly capitate. In the coral and native whites, however, and all of their crosses, the stigmas are much smaller. The position of the stigmas varies from the condition in which they are all closely appressed together to various degrees of divergence, in some cases being sharply at right angles with the column, and in others even decidedly reflexed. In all of the forms thus far examined, with the exception of the Coral and hybrid offspring from this species, the column is stiff, whereas with the Coral it is slender and pendulous.

The petals of the hibiscus flower undergo a rather uniform set of movements if the flower is cut from the plant and used for ornamentation in vases. Immediately after cutting the petals are likely to turn back and remain in that position for some hours, gradually moving forward again to the normal position and remaining in that position until wilting occurs. In all cases in wilting the petals fall forward around the column.

COLORS IN HIBISCUS FLOWERS.

While there is an almost unlimited variation in shades of colors observed in hibiscus flowers there are only three primary colors, in addition to white, which are concerned in the flower pattern. These are red, yellow and orange. An almost unlimited number of shades of red, yellow and orange occur. More than one-half of all the varieties examined would be classified as pink in color. This pink in the majority of cases is merely a diluted crimson. In many of the pink flowers in which the eye is of the deepest crimson there are various shades of this color, fading into a merest pink wash on an almost white flower. In a large number of flowers there is more or less of the pure scarlet color, and a dilution of this color brings about a scarlet pink which is of rather common occurrence. In addition to the great number of shades of crimson and scarlet there are various mixtures of crimson and scarlet, combined in various forms with a tinge of yellow or orange. The eye is in a number of varieties decidedly blackish-crimson. No blue has been found in

any of the forms of hibiscus in Hawaii, and therefore no shade which can be called lavender, with the possible exception of 107:1 V. S. H., which has a mere hint of lavender on one edge of the petal.

It is well known that some of the varieties of hibiscus with red flowers may be used in producing a dye of more or less temporary nature. This has given rise to the name of shoe-black plant in the Orient, where these flowers are used in blacking shoes. In all of the reds and pinks the coloring matter is dissolved in the cell sap, and is found only in the outer layer of epidermal cells on either side of the petal. Within a few seconds after the cells which contain the coloring matter are ruptured the color turns to a blue, by a sort of oxidation process. As a matter of fact nearly all of the red flowers develop a bluish tinge when wilting or immediately after being bruised. The yellow, orange and white colors are due to definite protoplasmic bodies in the outer layer of epidermal cells. These bodies are colored yellow or orange in those areas where a yellow or orange color shows upon the surface of the petal, and are unusually numerous and highly refractile, but otherwise without color in the case of white flowers. In the white blotchings which are common in many of the crimson-pink hibiscus the coloring matter is absent in the epidermal cells underlying the white blotches; the blotching is thus merely an extension of a condition which is found in all pink or red flowers, namely, that not all of the epidermal cells contain colored sap. In those flowers in which the color is obviously a mixture of red and yellow or orange it is found upon a microscopic examination that yellow or orange protoplasmic bodies are present in the epidermal cells along with the red colored sap, thus bringing about a mixed or blended color.

ANOMALOUS FLOWERS.

A number of anomalous conditions occur in the flowers of the hibiscus. Occasionally the parts of the flower are in fours rather than in fives, and in rare instances extra petals are produced up to at least nine. Sometimes the style does not have the usual five branches, but remains unbranched, thus carrying only one stigma.

Color sports have been observed on a number of varieties. On the Double Salmon there are occasionally dark red double flowers, and the Double Yellow now and then bears a regular double flower half yellow and half salmon, or occasionally flowers which are of salmon color throughout. In a number of varieties it has been observed that the shade of color in the flower may change somewhat as the plant grows older, resulting sometimes in a darker flower, and sometimes in a lighter flower, by the time the plant reaches an age of two or three years.

Two decidedly unusual conditions have been observed in the plants

at this station. In 26:3 V. S. H., with a full double flower, the first flower from the developing bud is about four and half inches in width. As soon as the flower falls a second full double flower develops from the seed pod of the first. If the seed pod is opened in the first flower it is found to be tightly packed with developing young petals, fully colored. A few seeds are formed attached irregularly here and there to the edges of the young petals. The flower which develops from the seed pod of the first flower is only about three inches in diameter.

The most remarkable case of failure of the hereditary characters to blend is seen in 98:1 V. S. H. Three of the plants grown from seed from the same seed pod produce regular symmetrical pink flowers. On 98:1, however, each branch bears flowers with a different color pattern, and in most of the flowers the colors are not blended at all but occur pure in patches or streaks of various size, the petals sometimes being sharply divided along the middle line. The colors of the flowers on this plant vary from pure white through yellows to various shades of pink. Some of them are furnished with a distinct crimson eye; others have no special color in the throat; occasionally the column is divided in half in the color pattern, one side being white and the other crimson-pink. The stigmas show the same variation in color, being yellow or deep crimson, occasionally two and half stigmas of one color and two and half of the other color. This is apparently an instance of a hybrid plant in which the plant is not a single individual. Each twig appears to be an individual with distinct and persistent characters of its own.

INSECTS AND DISEASES OF HIBISCUS.

As already stated, hibiscus is not as a rule seriously attacked by insect pests. At times the Japanese beetle eats holes in the leaves and flowers, showing often a decided preference for certain varieties. This injury however, does not ordinarily interfere greatly with the appearance of the plant. Young growth is often attacked by plant lice, (*Aphis gossypii*), or by mealy bug (*Pseudococcus filamentosus*). The mealy bug is especially inurious to native white hibiscus. The flowers are sometimes injured by the attacks of grasshoppers (*Xiphidium varipenne*). In some localities occasional injury results from the attacks of scale insects (*Chrysomphalus ficus*, *Aspidiotus cyanophylli*, *A. lataniae*, *Pseudaonidia clavigera*), as well as from White fly (*Aleyrodes hibisci*). Among the incidental insect injuries of the hibiscus mention may be made of the caterpillars (*Plusia chalcites*, *Cosmophila noctivolans*, *C. sabulifera*, and *Phlyctaenia chytropa*). The plant lice may be destroyed by spraying with kerosene emulsion, if the lady birds should not hold them in check. On young and particularly valuable plants the mealy bug may be

destroyed by washing off with strong soap suds. The other insects mentioned in the above list are ordinarily not serious enough to require artificial means for their control.

The only fungus disease which has attracted any attention on hibiscus is an unknown trouble much like the cotton wilt, and perhaps identical with it. This disease affects chiefly the Common Single Red and 112 V. S. H. The roots of affected plants are not attacked, but whole branches may be affected from near the point where they are attached to the trunk, and ultimately die. The fungus appears to penetrate through both the wood and bark tissue.

BREEDING WORK PLANNED.

None of the hybrid forms of hibiscus thus far produced at this Station has been carried through three generations in order to determine the behavior of the various characteristics in heredity. It is planned to carry these experiments out with four or five hybrid forms in which the parents have sharply contrasting characters. Seedlings will be obtained by close fertilization and flowers brought to maturity by grafting on to hardy stock, in order to save time in carrying this material through three generations. It is hoped that at the end of that time it will be possible to formulate the hereditary characteristics of hibiscus.

METHOD USED IN DESCRIBING FORMS OF HIBISCUS.

In the following list of descriptions of species and varieties of hibiscus, each species or form has been described in the field from the examination of growing plants with fully developed flowers. The first line of each description indicates the serial number which has been applied to the form at this Station. The number is followed by the initials of the breeder, if it be a hybrid plant. The name of the form is given in parenthesis in the cases of the few forms which have received names in addition to the serial number. In indicating the parents the male parent is always mentioned first. With the species and varieties which have been introduced or are native the first line of the description contains merely the word "native" or "introduced" to indicate that fact.

The names of the breeders of hybrid hibiscus indicated by initials are as follows:

V. S. H. for V. S. Holt; G. P. W. for G. P. Wilder; C. M. C. for C. Montague Cooke; A. G. for A. Gartley; J. A. C. for J. A. Cummins; W. M. G. for W. M. Giffard; G. R. for Grace Rice; J. W. M. for J. W. MacNeill, and J. K. for Josephine King.

No artificial key has been prepared for identifying the species or varieties described in the following list. The forms have merely

been grouped for convenience, according to the color of the flower, into whites, pinks, yellows and reds. It is interesting to note that 19 are white, 124 pink, 31 yellow and 65 red. From the standpoint of the origin of these forms 14 are native, 33 introduced, one of unknown origin, and the remainder are hybrids, 116 being produced by V. S. Holt, 30 by C. M. Cooke, 15 by G. P. Wilder, 8 by J. A. Cummins, 8 by A. Gartley, 6 by W. M. Giffard, 5 by Grace Rice, 2 by J. W. MacNeil and 1 by Josephine King. The 239 forms described in the following list were selected as being the most distinct and valuable forms observed in the examination of about five hundred varieties which may be found about Honolulu. Many of the hybrid forms which have been introduced have not been considered worthy of propagation and have been discarded. We have selected for describing only those forms which are considered worth propagating and which will be retained and propagated, and may therefore be secured by those who are interested in adding to their ornamental yard plants. It will be observed that in some of the descriptions supplementary forms have been mentioned in connection with the one which is considered best of the seedlings obtained from a single hybrid seed pod. The serial numbers used throughout the list have a secondary number attached after a colon. The secondary number indicates the number given to the particular plant grown from the seed of one seed pod. The single hybrid seed pod may have contained twenty or more seeds. In most cases all of these seeds have been planted, and from the resulting seedlings selections have been made of the best plants for further propagation. The figure after the colon in the serial number therefore indicates the number of the plant from the particular cross indicated by the serial number.

[Bull. 29]



Hibiscus, variety Ruth Wilcox.

DESCRIPTIONS OF ORNAMENTAL FORMS OF HIBISCUS.

(Native, Introduced And Crosses.)

FORMS WITH WHITE FLOWERS.

Ruth Wilcox, V. S. H. (156:1) Parents: May Damon X Knudsen White.

Very vigorous, freely branching, good foliage, upright growth, bushy, bark light gray.

Leaves, cordate, crenate, blunt, $2\frac{3}{4}$ - $4\frac{1}{2}$ in. wide, 3-5 in. long, light green, shiny, pubescent both sides, petiole $1\frac{1}{2}$ in. long.

Flower, $6\frac{1}{2}$ in. wide, pure white, no eye, petals wide, column crimson toward tip, 4 in. long, stigmas scarlet, filaments crimson, bracts 6-8, greenish brown, peduncle 1 in. long. Flower opens at noon, lasts two days, has delicate perfume. Best white thus far bred. Self seeding.

99:4 V. S. H. Parents: Rosie Tenney X 1E.

Dwarfish, sturdy growth, freely branched, good foliage, dark gray bark, green twigs.

Leaves, elliptical ovate, thick, entire dark green, blunt, $1-2\frac{1}{2}$ in. wide, $2-3\frac{1}{2}$ in. long petiole $\frac{3}{4}$ in.

Flower, 7 in. wide, nearly white with pink tinge, throat same color, column pale yellow, $3\frac{3}{4}$ in. long, stigmas spreading, orange, peduncle $2\frac{1}{2}$ in. bracts, 6 or 7 green, upright. Heavy seeder, crosses readily.

120:1. V. S. H. Parents: Knudsen White X Ethel L.

Strong grower, freely branching, bark light gray, brownish on twigs.

Leaves, broadly ovate, crenate, smooth, dark green, $2\frac{1}{2}$ - $3\frac{3}{4}$ in. wide, $3\frac{3}{4}$ - $5\frac{1}{2}$ in. long, petiole $1\frac{1}{4}$ in. long.

Flower, $5\frac{3}{4}$ in. wide, white with pink veins and indistinct crimson eye, column crimson, 4 in. long, peduncle 1 in. long, bracts 6, reddish brown, spreading, stigmas appressed, deep crimson. Self seeder. Most resembles male parent.

120:3. V. S. H. Parents: Knudsen White X Ethel L.

Very vigorous, erect, freely branching, good foliage, light gray bark, reddish twigs.

Leaves, elliptical or ovate, serrate, nearly smooth, $1\frac{1}{2}$ - $2\frac{1}{2}$ in. wide, $2\frac{1}{2}$ - $4\frac{1}{4}$ in. long, petiole $\frac{3}{4}$ in.

Flower $6\frac{1}{2}$ in. wide, pure white throughout, column pale pink, $4\frac{1}{2}$ in. long peduncle $1\frac{3}{4}$ in., bracts 5, brownish, recurved. Seeds freely.

150:1. V. S. H. Parents: G. P. W. 207 X Knudsen White.

Vigorous grower with spreading branches, bark light gray, red on twigs pubescent.

Leaves, broadly ovate or cordate, serrate-crenate, light green, pubescent on both sides, $2\frac{1}{2}$ - $3\frac{1}{2}$ in. wide, $3-3\frac{1}{2}$ in. long, petioles 1-2 in. long.

Flower, pure white with crimson eye, $4\frac{1}{2}$ -6 in. wide, column $3-4\frac{1}{2}$ in.

long, yellowish crimson at tip, stigmas pink, each petal has small wing near throat of corolla, odor of Knudsen White. Flower lasts two days; involucre bracts $\frac{1}{2}$ in. long, seven in number. Self seeder, profuse bloomer. Like male parent, except crimson eye.

291:5. V. S. H. Parents: J. P. M. Tantalus White X Park White.

Rapid growth, erect, with profuse lateral branches, dense foliage, dark gray bark, green twigs.

Leaves, lanceolate or ovate, entire or crenate light green, smooth, $1\frac{1}{2}$ -3 in. wide, $2\frac{1}{2}$ - $4\frac{1}{2}$ in. long, petiole 1 in.

Flower 6 in., white with faint pink wash, small crimson eye, column pink, $3\frac{1}{2}$ in. long, peduncle $1\frac{1}{2}$ in. long, bracts 6 or 7, spreading, green, stigmas orange scarlet. Not self seeding.

410:1. V. S. H. Parents: Coral X Tantalus 38.

Tall, erect growth, light gray bark, green twigs.

Leaves ovate serrate or crenate, smooth, dark green, $1\frac{3}{4}$ -3 in. wide, $2\frac{3}{4}$ - $4\frac{1}{4}$ in. long, petiole 1 in.

Flower $5\frac{1}{4}$ in. wide, nearly white with pale pink veins meeting in throat, petals notched, column $3\frac{1}{2}$ in. pale pink, peduncle 2 in., bracts 7, minute. Not self seeder.

410:2 has more branches, more decidedly pink flowers.

440:1. C. M. C. Parentage: (?)

Rapid growth, erect, sparingly branched, light bark, brownish twigs and petioles.

Leaves ovate, crenate, slightly pubescent beneath, acuminate, $4\frac{1}{2}$ - $5\frac{1}{4}$ in. wide, $4\frac{1}{2}$ - $7\frac{1}{2}$ in. long, petiole $2\frac{1}{2}$ in. long.

Flowers 6 in. wide, pure white, pale pink on back of petals, column crimson, $5\frac{1}{2}$ in. long, peduncle $1\frac{1}{4}$ in. long, bracts 5 or 6 green spreading. Not self seeding.

446:1 (May Damon), G. P. W. 206. Parents: Kauai White X Beatrice.

Vigorous growth, light gray bark, upright growth, spreading.

Leaves elliptical or ovate entire, smooth, light green, $1\frac{1}{4}$ - $2\frac{1}{2}$ in. wide, $2\frac{3}{4}$ in. long, petiole 1 in.

Flower 5 in. wide, nearly white, back of petals crimson pink, column crimson $3\frac{1}{4}$ in., peduncle $\frac{1}{2}$ in., bracts 5-7, narrow, reddish, recurved. Seeds and crosses freely.

447 (Knudsen White.) Native.

At two years of age $6\frac{1}{2}$ ft. high, erect branching, gray bark, brown and pubescent on twigs; of vigorous growth.

Leaves elliptical-ovate, barely crenate, pubescent both sides, $2\frac{1}{4}$ in. $3\frac{1}{4}$ - $4\frac{1}{2}$ in. long, on petioles 1-2 in. long, light green.

Flower pure white, with delicate aroma, expanse of $5\frac{3}{4}$ - $6\frac{1}{2}$ in.; column 5 in. long, outer two-thirds crimson as are also stigmas and filaments; involucre bracts 7 or 8, $\frac{1}{2}$ in. long, recurved, brownish, seed pod large, crosses readily as a male parent with nearly all varieties. As female parent is less fertile and produces wings on each petal of hybrid.

448 (Narrow Petal White.) Introduced from Fiji.

Strong growth, smooth light gray bark, brownish twigs.

Leaves elliptical or ovate, entire, red margined, smooth, light green, $1\frac{3}{4}$ - $2\frac{3}{4}$ in. wide, $2\frac{1}{2}$ - $3\frac{3}{4}$ in. long, petiole 2 in. long.

Flowers $5\frac{1}{2}$ in. wide, pure white throughout, petals $\frac{1}{2}$ in. wide, column crimson curved upward, $4\frac{1}{2}$ in. long, stigmas small sometimes included, bracts 6, reddish, short, recurved, peduncle $1\frac{1}{2}$ in. long, calyx reddish. Seeds and crosses freely.

449 (Punaluu White.) Native.

Strong growth, freely branching from base, erect, dark gray bark, green twigs, red petioles.

Leaves ovate or orbicular obscurely crenate or entire, light green, pubescent beneath, smooth above, $3-4\frac{1}{4}$ in. wide, $3\frac{1}{2}$ -5 in. long, petiole $1\frac{1}{2}$ in.

450 (Tantalus White.) Native.

A native species occurring under about seventy forms or varieties, some of which are here described; all have bark light gray, green on twigs, with brown lenticels, and smooth light green leaves.

T. 13.

Moderately branched, medium-strong growth, ascending branches.

Leaves, entire or faintly crenate, elliptical, ovate or obovate, $2-2\frac{1}{2}$ in. wide, $3\frac{1}{4}$ -4 in. long, petiole $1-1\frac{3}{4}$ in. long.

Flower $7\frac{1}{2}$ in. wide, pure white, petals $1\frac{1}{2}$ in. wide, column $5\frac{1}{2}$ in. long, involucre bracts 5-7, short, recurved, reddish brown, peduncle $\frac{3}{4}$ in. long, column becoming dark crimson at tip, pubescent, stigmas crimson appressed. Free seeders. Crosses readily.

T. 19.

Low growing, short branches.

Leaves distinctly crenate, broadly ovate, 1-3 in. wide, $3\frac{1}{4}$ -4 in. long, petiole 1 in. long.

Flower $4\frac{1}{2}$ in. wide, petals $\frac{3}{4}$ in. wide, column 4 in. long, peduncle $\frac{1}{2}$ in. long.

T. 23.

Profuse branching, brownish on twigs.

Leaves ovate or obovate, with wavy brown red margin, 2-3 in. wide, $4-5\frac{1}{4}$ in. long, petiole 2 in. long.

Flower $6\frac{1}{2}$ in. wide, column 7 in. long, petals 1 in. wide, peduncle $1\frac{1}{4}$ in. long.

T. 26.

Tall growth, more brown on bark.

Leaves broadly ovate or nearly orbicular, entire, $3\frac{1}{2}$ - $5\frac{1}{4}$ in. wide, $3\frac{3}{4}$ -5 in. long, petiole $1\frac{1}{4}$ in. long.

Flower 6 in. wide, petals $1\frac{1}{4}$ in. wide, column $4\frac{1}{2}$ in. long, peduncle $\frac{1}{2}$ in. long.

451 (Waianae White.) Native.

Tree 40 ft. high, dark gray bark, reddish twigs.

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Leaves ovate, crenate, acuminate, smooth, dull green, 2-2¾ in. wide, 2½-3½ in. long, 1¼ in. petiole.

Flower 3½ in. wide, pure white, petals ¾ in. wide, column crimson, 3½ in. long, peduncle 1½ in., bracts 6 or 7, red, very short, recurved. Self seeder, does not cross.

452 (Rice White.) Native.

Good growth, 6-8 ft. high, light bark, green twigs, upright, freely branching.

Leaves ovate or orbicular, crenate, shiny, light green, slightly pubescent, 1½-3 in. wide, 2-3 in. long, petiole 1 in. long.

Flower 4½ in. wide, pure white, petals 1¼ in. wide, column pale pink 4 in. long, peduncle 1 in. long, bracts 9 or 10, brownish, narrow, recurved. Seeds and crosses freely.

A native white hibiscus found at Kalihiwai, Kauai, by J. M. Lydgate, and sent to C. N. Forbes, has small flowers, short calyx and roughly pubescent leaves.

532 (Molokai White.) Native.

Attains a height of 15-20 ft. light rough bark, brownish twigs.

Leaves ovate or orbicular, entire, crenate or serrate, smooth, shiny, 2½-4¼ in. wide, 2¾-4 in. long, petiole 2½ in. long.

Flower 5¾ in. wide, petals 1 in. wide, white throughout, column cream white, 3½ in. long, peduncle ¾ in., bracts 6, very short, recurved, stigmas crimson. Seeds freely and crosses.

537 A. G. 73. Parents: Knudsen White X Punaluu White.

Vigorous growth, erect branches, light bark, brownish twigs.

Leaves elliptical or ovate, entire, red margin, pubescent, 3-4 in. wide, 4-5 in. long, petiole 1 in.

Flower 7½ in. wide, pure white, petals 1½ in. wide, column crimson, 6 in. long, peduncle 1 in., bracts 8, long reddish.

120:4 V. S. H. (Liliuokalani.) Parents: Knudsen White X Ethel L.

Moderate growth, light bark, slender reddish twigs.

Leaves ovate, serrate, acuminate, light green, slightly pubescent beneath, 1½-2½ in. wide, 2-4 in. long, petiole 1 in. long.

Flower 7 in. wide, white, medium crimson eye, column pink, 5 in. long, peduncle 2 in. long, bracts 6, reddish, erect.

539 (*H. mutabilis*.) Introduced.

Tall, vigorous growth, abundant branching, dark bark, green twigs, dense foliage.

Leaves palmately 5-lobed, serrate, pubescent, gray-green, 3½-5 in. wide, 4-5 in. long, petiole 4½ in. long.

Flowers full double, 4 in. wide, white in the morning, changing to crimson by night, calyx teeth wide spread, bracts 8 or 9, spreading, peduncle 4 in., seed pod ovoid.

FORMS WITH PINK FLOWERS.

26:4 V. S. H. Parents: Single Pink (Station) X Carnation.

Tall, irregular branching, drooping branches, bark brownish gray.

[Bull. 29]

Leaves lanceolate or ovate, smooth, dark green, serrate, raised veins, $1\frac{1}{4}$ - $2\frac{1}{2}$ in. wide, $1\frac{3}{4}$ - $3\frac{1}{4}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower 6 in. wide, uniform medium crimson, with paler veins and dark throat, column crimson, declined, $4\frac{1}{4}$ in. long, peduncle $2\frac{1}{4}$ in. long, bracts 6, long, green, appressed. Not self seeding.

35:1 V. S. H. Parents: Single Pink (Kapiolani Park) X Mrs. Hassinger.

Strong growth, dense foliage, erect main branches, pendulous side branches, dark gray bark, green twigs.

Leaves lanceolate, ovate, entire or irregularly dentate, smooth, 1-2 in. wide, $2\text{-}3\frac{1}{4}$ in. long, petiole $\frac{3}{4}$ in. long.

Flower 6 in. wide, uniform medium crimson pink, with black crimson eye, column $3\frac{3}{4}$ in., peduncle $2\frac{1}{4}$ in., bracts 6-8, green, spreading. Not self seeder.

36:1 V. S. H. Parents: Single Pink (Kapiolani Park) X Mrs. Hassinger.

Dwarfish, erect, good foliage, dark gray bark, green twigs.

Leaves ovate, 3-lobed, or 3-divided, entire or dentate, smooth, $1\frac{3}{4}$ - $2\frac{3}{4}$ in. wide, $2\frac{3}{4}$ - $3\frac{1}{2}$ in. long, petiole 1 in.

Flower 6 in. wide, medium crimson pink, lighter veins, large dark crimson eye, column pale pink $3\frac{3}{4}$ in. long, peduncle $1\frac{3}{4}$ in., bracts 6. Not self seeder.

60:1 V. S. H. Parents: Tantalus 38 X 1E.

Erect, single stem, sparse branching, dark gray bark, green twigs.

Leaves elliptical or obovate, thick, smooth, entire or sparingly serrate, sometimes truncate, $1\frac{1}{2}$ -2 in. wide, $2\frac{1}{4}$ -3 in. long, petiole $\frac{3}{4}$ in.

Flower $6\frac{1}{4}$ in. wide, cerise pink, white veins, white near throat with small crimson eye, column white 3 in. long, peduncle 2 in. long, bracts 6 or 7, green, upright. Free seeder.

50:1 V. S. H. Parents: Oahu Red X Mrs. Hassinger.

Moderate growth, freely branching from base, dark bark, green twigs.

Leaves lanceolate or ovate, toothed, acuminate, smooth, shiny, $1\frac{1}{4}$ -2 in. wide, $2\text{-}3\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower 5 in. wide, medium crimson, deeper eye, column $3\frac{1}{4}$ in. long, peduncle $1\frac{1}{2}$ in. long, bracts 7, green erect. Not self seeder.

69:1 V. S. H. Parents: Peachblow X Single Lemon.

Low growth, sparse foliage, dark bark, green twigs.

Leaves lanceolate or ovate, crenate, smooth, thick, $1\text{-}1\frac{3}{4}$ in. wide, $2\text{-}2\frac{1}{2}$ in. long, nearly sessile.

Flower 4 in. wide, outer petals delicate crimson-pink, inner petals nearly white, large scarlet stigmas, peduncle $1\frac{3}{4}$ in. long, bracts 8, green erect. Not self seeder.

70:3 V. S. H. Parents: Coral X Lillian Wilder.

At two years of age 12 ft. high, erect and ascending branches, with brown twigs.

Leaves ovate, crenate, slightly pubescent, $1\frac{1}{2}$ in. wide, $2\frac{1}{2}$ in. long, dark green.

Flowers on 2-2 $\frac{3}{4}$ in. peduncle, involucre bracts 7, very short, petals, column and stigmas crimson pink, column slender declined; petals with dark crimson veins and eye, and crenate edge. Not self seeding. Characters of Coral parent dominant.

87:5 V. S. H. Parents: Semidouble Salmon X Single Cerise.

At two years of age 15 ft. high, strong wood, good foliage, dark gray bark, twigs reddish pendulous.

Leaves lanceolate, elliptical or ovate, serrate, shiny, smooth, 1 $\frac{1}{2}$ -2 $\frac{1}{2}$ in. wide, 2 $\frac{1}{4}$ -2 $\frac{3}{4}$ in. long, petiole 1 $\frac{1}{4}$ in.

Flower 5 $\frac{1}{2}$ in. wide, rich crimson, small darker eye surrounded by band of scarlet vermillion, column 4 in., stigmas deep crimson, peduncle 2 in., bracts 5 or 6, green, erect. Rarely self seeding.

87:4 has larger, more decidedly ovate leaves.

90:2 V. S. H. Parents: Single Orange (upright) X Single Cerise.

Strong growth, thick branches, brownish bark, green on twigs.

Leaves elliptical or ovate, entire or crenate, sometimes truncate, thick, dark green, 1 $\frac{1}{2}$ -2 in. wide, 2-2 $\frac{3}{4}$ in. long, petiole 1 in. long.

Flowers 4 $\frac{1}{2}$ in. wide, deep crimson pink with white veins and throat, column pale yellow, 3 in. long, peduncle 2 in., long, stigmas deep scarlet, bracts 5-8 green, appressed. Self seeder. Crosses freely.

90:6 V. S. H. has small crimson eye, slightly mottled in throat, and darker flower.

91:1 V. S. H. Parents: Station Pink X Single Orange (upright).

Medium growth, freely branching, dark gray bark.

Leaves ovate, entire or crenate, light green, 1 $\frac{1}{2}$ -2 $\frac{1}{2}$ in. wide, 2 $\frac{3}{4}$ -3 $\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in.

Flower 4 $\frac{1}{2}$ in. wide, uniform cerise pink throughout, with white veins, column pale yellow, 2 $\frac{3}{4}$ in. long, peduncle 1 in., bracts 6-8, short, green, spreading, stigmas deep crimson. Self seeder.

98:1 V. S. H. Parents: Rosie Tenney X Ethel L.

Vigorous growth, coarse thick branches, gray bark, greenish on twigs.

Leaves irregular, ovate obovate, or orbicular, thick, dark green, prominent veins, irregularly dentate or crenate, 1 $\frac{1}{2}$ -3 $\frac{1}{2}$ in. wide, 2 $\frac{1}{4}$ -3 $\frac{3}{4}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower, different on each branch, 4 $\frac{1}{2}$ -6 in. wide, crimson eye varying from small to large, petals often irregular or notched, varying in color from white to crimson, with large blotches or stripes of salmon pink, yellow, white or vermillion. On one branch one-half the flower is crimson the other white, stigmas yellow or crimson, column thick, yellow or crimson, 3 in. long, peduncle 2 $\frac{1}{2}$ in. long. Rarely seeds.

98:2 V. S. H. Parents: Rosie Tenney X Ethel L.

Strong growth, erect, dense foliage, dark gray bark, green twigs.

Leaves elliptical or ovate, entire or crenate, smooth, shiny, dark green, 1 $\frac{1}{2}$ -1 $\frac{3}{4}$ in. wide, 2 $\frac{1}{2}$ -4 $\frac{3}{4}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower 7 in. wide, crimson pink, mottled with whitish near throat, deep crimson eye, column 3 in., peduncle 2 in., bracts 8 green spreading. Not self seeder.

[Bull. 29]



Mabel Currier Wilson.
1913.

Hibiscus, variety Peachblow.



Mabel Curran Wilson
1913

Hibiscus, variety Semidouble Salmon.



Hibiscus, variety Woodrow Wilson.

98:3 V. S. H. Parents: Rosie Tenney X Ethel L.

Strong growth, freely branching from base, bark dark brown, green on twigs, foliage dense.

Leaves lanceolate, ovate or cordate, entire blunt or truncate, dark green, $\frac{1}{2}$ -2 in. wide, 1-3 $\frac{1}{4}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower 7 in. wide, uniform pale pink, mottled with white, small dark crimson eye, stigmas deep scarlet, column 3 $\frac{1}{2}$ in. long, peduncle 2 in. long, bracts 6 or 7, green, spreading. Not self seeding.

102:3 V. S. H. Parents: Single Orange (upright) X 1E.

Low, upright, profuse bloomer, bark brownish gray, dense foliage.

Leaves smooth, thick elliptical or ovate crenate or entire, 1 $\frac{1}{2}$ -3 in. wide, 2 $\frac{1}{4}$ -3 $\frac{1}{2}$ in. long, petiole 1 $\frac{1}{2}$ in. long.

Flowers 4 $\frac{1}{2}$ in. wide, petals pale pink blotched with yellowish on one side, throat white, column pale yellow, 3 in. long, stigmas scarlet, peduncle 2 in. long. Seeds profusely.

Another plant from same seed pod (102:2) has uniformly pale crimson petals with light veins and dark crimson eye, shorter leaves and recurved stigmas.

102:4 V. S. H. Parents: Single Orange (upright) X 1E.

Strong growth, erect, sparse branches, dark gray bark, green twigs.

Leaves ovate, smooth, thick, entire or dentate, 1 $\frac{1}{2}$ -2 $\frac{3}{4}$ in. wide, 2-3 $\frac{1}{4}$ in. long, petiole 1 in.

Flower 6 $\frac{1}{4}$ in. wide, delicate crimson pink, one side of each petal darker, veins and throat white, stigmas deep crimson, spreading, column pale yellow 3 $\frac{1}{2}$ in. long, peduncle 1 $\frac{3}{4}$ in., bracts 7, green, erect. Free seeding.

107:1 V. S. H. Parents: Single Orange (flat) X bb Sec. 4.

Tall, upright, profusely branching, blackish bark with gray streaks, green twigs.

Leaves elliptical or ovate, entire or toothed at apex, smooth, dark green, 1-2 in. wide, 2-3 in. long, petiole $\frac{1}{2}$ in. long.

Flower 5 in. wide, pale pink-lavender with lighter veins and deep crimson eye, column nearly white, 3 in. long, stigmas dull brown, peduncle 2 in. long, bracts 6-8, green erect. Self seeder.

103:1 V. S. H. Parents: 1E X Single Orange (upright).

Profuse ascending, thick branches, dense foliage, bark brownish gray, green on twigs.

Leaves lanceolate, ovate, or 3-lobed, entire or crenate, shiny, dark green, 1 $\frac{1}{4}$ -2 $\frac{1}{4}$ in. wide, 2-2 $\frac{1}{2}$ in. long, petiole $\frac{3}{4}$ in. long.

Flower 4 $\frac{1}{2}$ in. wide, pale crimson pink, with wide white veins and throat, scarlet stigmas and pale yellow column 3 in. long, peduncle 3 in. long, bracts 5-8, green or appressed. Seeds freely.

110:1 V. S. H. Parents: 1E X Jamaica.

Strong growth, erect, fine foliage, dark gray bark, brownish twigs.

Leaves ovate or 3-lobed, dentate or crenate, 2 $\frac{1}{4}$ -3 $\frac{1}{2}$ in. wide, 3-4 $\frac{1}{4}$ in. long, petiole 1 $\frac{1}{2}$ in.

Flower 6 in. wide, brilliant pink, mottled with whitish, darker at throat,

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column white $3\frac{1}{4}$ in. long, peduncle 3 in. long, bracts 6, green, upright, stigmas orange. Not self seeder.

110:8 has deeper pink flower, with darker veins and deep crimson eye.

110:7 is lower in growth, and has flower 6 in. wide, nearly white, with pale crimson veins and throat.

112:1 V. S. H. (Woodrow Wilson). Parents: May Damon X Cooperi.

At two years of age 10 ft. high, profuse, erect and lateral branching, brownish red twigs.

Leaves elliptical or ovate, bluntly serrate with brown margin $1\frac{3}{4}$ -4 in. wide, 2-6 $\frac{1}{2}$ in. long.

Flowers on 2 $\frac{1}{2}$ in. peduncle, expanse 5-6 $\frac{1}{2}$ in., involucre bracts, 6 or 7, 1 in. long, brownish; crimson eye shading into petal veins, column and stigmas dark crimson, ground color of petals light crimson pink, column 4 $\frac{1}{2}$ in. long, straight. Plant resembles Cooperi, flower resembles May Damon. Self seeding.

113:5 V. S. H. Parents: 1E X Cooperi.

Upright, whip growth, sparsely branching, bark dark brownish gray, foliage good.

Leaves lanceolate or ovate, entire or crenate, acuminate, 1 $\frac{1}{2}$ -2 $\frac{1}{2}$ in. wide, 2 $\frac{1}{2}$ -4 in. long, petiole 1 in. long.

Flowers 6 $\frac{1}{2}$ in. wide, medium crimson pink, whitish on one side of each petal near base, dark crimson eye, stigmas spreading, far exserted, crimson, column 4 $\frac{1}{2}$ in. long, peduncle 2 in. long, bracts 7, long, green. Not self seeding. Crosses readily.

114:1 V. S. H. Parents: Nuuanu White X Cooperi.

At two years 8 ft. high, erect branching, twigs dark brown.

Leaves broadly ovate, slightly crenate, 3 $\frac{1}{2}$ -5 in. wide, 5-7 $\frac{1}{4}$ in. long, on brown petioles 2 $\frac{1}{2}$ -3 in. long, with conspicuous veins, pubescent above.

Flower on 2 in. peduncle, involucre bracts, 9, long, green, flower expanse 5 $\frac{1}{2}$ -7 in., column 5 in. long, eye, column and stigmas crimson, petals very light crimson pink. Self seeding. Male parent dominant.

120:2 V. S. H. Parents: Knudsen White X Ethel L.

Erect, vigorous growth, gray bark, brown on twigs.

Leaves ovate or cordate, serrate, dark green, pubescent beneath, 2 $\frac{3}{4}$ -4 in. wide, 4 $\frac{3}{4}$ -6 in. long, petiole 2 in. long.

Flower 6 $\frac{1}{4}$ in. wide, crimson pink with dark veins and eye, blotched on back, column crimson, 4 $\frac{1}{2}$ in. long, peduncle 2 in. long, calyx loose, bracts 6, green, recurved, $\frac{1}{2}$ in. long. Self seeder. Good blend of parental characters.

121:1 V. S. H. Parents: May Damon X Ethel L.

Slow growth, good foliage, bark gray, brownish on twigs, freely branching.

Leaves elliptical or ovate, smooth, entire dark green, 1-2 $\frac{1}{4}$ in. wide, 2 $\frac{1}{2}$ -3 $\frac{3}{4}$ in. long, petiole 1 in. long.

Flowers 4 $\frac{1}{4}$ in. wide, very pale crimson pink, with deep crimson veins, petals narrow, column crimson, 2 $\frac{1}{4}$ in. long, peduncle 1 $\frac{1}{4}$ in. long, bracts 5, brownish, recurved. Not self seeding.

122:1 V. S. H. Parents: Double Cerise X Ethel L.

Dwarf, sparingly branched, good foliage, dark gray bark, green twigs, peduncles sometimes branched.

Leaves broadly lanceolate, ovate, entire light green, acuminate, $1\frac{1}{4}$ - $2\frac{1}{4}$ in. wide, $2\frac{3}{4}$ - $4\frac{1}{2}$ in. long, petiole $\frac{3}{4}$ in.

Flower 5 in. wide, delicate crimson pink, one side of each petal darker, crimson eye, flower semidouble (a few petals at tip of modified column), peduncle 3 in. long, bracts 5-10 green, spreading. Not self seeder.

124:1 V. S. H. Parents: Nuuanu White X Ethel L.

Profusely branching, slow growth, dwarf, brownish bark, red on twigs.

Leaves broadly lanceolate, wedge shaped at base, crenate, smooth, dark green, 2-3 in. wide, $4\frac{1}{2}$ - $5\frac{1}{4}$ in. long, petiole $1\frac{1}{2}$ in. long.

Flower uniform pale crimson pink, with darker veins, no eye, 5 in. wide, column dark crimson, $3\frac{1}{2}$ in. long, peduncle $1\frac{1}{2}$ in. long, bracts 6, green, spreading, stigmas spreading, crimson. Does not seed. Crosses readily. Characters of male parent dominant.

124:2 has broadly elliptical, entire thick leaves, 3-4 in. wide, $4\frac{1}{2}$ -7 in. long, petiole 2- $3\frac{1}{2}$ in. long, flower $6\frac{1}{4}$ in. wide, pale pink with large blotched crimson eye, beautiful dark crimson veins on back of petals, column dark crimson, 5 in. long, peduncle 2 in. long.

128:2 V. S. H. Parents: Narrow Petal White X Carnation.

Strong growth, upright branches, dark gray bark, reddish on twigs.

Leaves broadly ovate or cordate, dentate, shiny dark green, smooth, 3-5 in. wide, $3\frac{3}{4}$ -6 in. long, petiole 1 in. long.

Flower, $5\frac{1}{2}$ in. wide, full double, petals rich crimson pink, darker on claws, peduncle $2\frac{1}{2}$ in. long, bracts 5-7, green.

130:7 V. S. H. Parents: Tantalus White (38) X Ah Pio.

Vigorous, profusely branching and blooming, bark dark gray, green on twigs.

Leaves lanceolate or ovate, crenate, dark green, smooth, $1\frac{3}{4}$ -3 in. wide, 3- $4\frac{1}{2}$ in. long, petiole $1\frac{1}{2}$ in. long.

Flower $6\frac{1}{4}$ in. wide, pale pink (nearly white), dark crimson eye, column pale crimson, 4 in. long, peduncle $1\frac{3}{4}$ in. long, bracts 6-8, short, green, recurved. Self seeder. Flowers persist two days. Good blend of parental characters.

131:1 V. S. H. Parents: G. P. W. 105 X Ah Pio.

Moderately vigorous, slender branches, rough, dark gray bark, reddish on twigs.

Leaves elliptical or ovate, entire or crenate, smooth, light green, 1- $1\frac{1}{2}$ in. wide, $2\frac{1}{4}$ - $2\frac{3}{4}$ in. long, petiole 1 in. long.

Flower $4\frac{3}{4}$ in. wide, beautiful pale pink, shading toward white on one side of each petal, dark vermilion eye, column pale crimson, $3\frac{1}{2}$ in. long, peduncle 1 in. long, bracts 6, spreading, green. Self seeder.

132:1 V. S. H. Parents: 1E X Ah Pio.

Very vigorous, woody, dense foliage, erect and pendulous branches, bark dark gray, brownish red on twigs.

Leaves oblanceolate or ovate, coarsely dentate, dark green, pubescent beneath, 1-2 $\frac{3}{4}$ in. wide, 2-3 $\frac{1}{2}$ in. long, petiole 1 $\frac{3}{4}$ in. long.

Flower 6 $\frac{1}{2}$ in. wide, cerise pink, with white veins, and small crimson eye, column cream-white, 4 in. long, stigmas spreading, pale orange, bracts erect, 7, green, peduncle 2 $\frac{1}{2}$ in. long. Not self seeding. Blend of parental characters.

135:9 V. S. H. Parents: Single Pink (Kapiolani Park) X Carnation.

Upright, vigorous, good foliage, dark gray bark, green on twigs.

Leaves ovate, coarsely dentate, smooth, dark green, 2-3 $\frac{3}{4}$ in. wide, 2 $\frac{3}{4}$ -5 $\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower, double, 5 in. wide, uniform, medium crimson pink, stigmas deep scarlet, bracts 6, green, peduncle 3 in. long. Not self seeder. Used as male parent.

137:1 V. S. H. Parents: Single Pink (Station) X Carnation.

Erect, vigorous, sparsely branching, bark light gray, brownish on twigs.

Leaves broadly ovate or cordate, serrate, dark green, pubescent both sides, 2-2 $\frac{1}{2}$ in. wide, 3-3 $\frac{1}{2}$ in. long, petiole 1 $\frac{1}{4}$ in. long.

Flower 5 in. wide, delicate crimson pink, dark crimson eye, petals crepe like, column pale crimson, 3 $\frac{3}{4}$ in. long, peduncle 1 $\frac{1}{4}$ in. long. Not self seeding. Male inheritance dominant. Foliage like Carnation.

138:1 V. S. H. Parents: 1E X Mrs. Hassinger.

Slow growth, well branched, dark gray bark, green twigs, dense foliage.

Leaves ovate or elliptical, smooth, entire, or crenate, 1 $\frac{1}{2}$ -2 $\frac{3}{4}$ in. wide, 2-3 $\frac{1}{4}$ in. long, petiole $\frac{1}{2}$ in.

Flower 5 $\frac{1}{2}$ in. wide, crimson-magenta, lighter veins, black-crimson eye, column 3 $\frac{1}{2}$ in. long, peduncle 1 in., bracts 6 or 7, green ascending. Not self seeder.

138:3 has crimson flowers 6 $\frac{1}{4}$ in. wide, larger leaves, regularly dentate.

138:2 V. S. H. Parents: 1E X Mrs. Hassinger.

Erect growth, sparse branching, heavy wood, bark dark gray, rough.

Leaves lanceolate, ovate, or 3-lobed, entire or dentate, light green, 1 $\frac{1}{4}$ -2 $\frac{1}{2}$ in. wide, 1 $\frac{1}{2}$ -2 $\frac{1}{4}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower 5 $\frac{3}{4}$ in. wide, rich crimson with dark crimson eye, column 3 $\frac{1}{4}$ in. long, stigmas deep crimson, of normal spread, peduncle 2 $\frac{1}{4}$ in. long, bracts 6 or 7, short, green. Not self seeder.

169:1 V. S. H. Parents: 257 X Rosie Tenney.

Low growing, erect branches, brown bark, green on twigs.

Leaves elliptical or ovate, entire or crenate, smooth, dark green, 1 $\frac{3}{4}$ -3 $\frac{1}{4}$ in. wide, 2 $\frac{1}{2}$ -4 in. long.

Flower 5 $\frac{3}{4}$ in. wide, uniform pale pink with lavender hue, very small pale crimson eye, stigmas spreading, crimson, column pale yellow, 4 in. long, involucre bracts $\frac{1}{2}$ in. long, green 6-9. Self seeding. Characters of female parent dominant.

175:1 V. S. H. Parents: Narrow Petal White X Ah Pio.

Vigorous growth, profuse branching and blooming, dense foliage, bark light gray, reddish on twigs.

Leaves lanceolate or ovate, crenate or serrate, smooth, dark green, 1-2½ in. wide, 2-4½ in. long, petiole 1 in. long.

Flower 6 in. wide, pale crimson pink, tinged with cream-yellow, dark crimson eye, petals narrow, widely spreading, column crimson, 4½ in. long, peduncle 2 in. long, bracts 5-7, brownish, erect. Not self seeder. Crosses readily.

182:27 V. S. H. Parents: Narrow Petal White X Carnation.

Tall, freely branching from near base, light bark, red twigs, good foliage.

Leaves ovate, serrate, smooth, shiny, dark green, 1½-2 in. wide, 2½-3 in. long, petiole 1 in. long.

Flower 5 in. wide, full double, petals in five clusters, uniform medium crimson-pink, darker at base, peduncle 2½ in. long, bracts 5, green, spreading. Not self seeder.

Of twenty-eight plants of this cross all were of same color, and all except 182:27 were single or semi-double.

193:1 V. S. H. Parents: Narrow Petal White X Mrs. Hassinger.

Erect, sparse branching, good foliage, dark gray bark, greenish brown twigs.

Leaves, 3-lobed, sometimes ovate or orbicular, light green, smooth, dentate, 2½-4 in. wide, 3-4¼ in. long, petiole 1½ in.

Flower 5¼ in. wide, delicate crimson pink, paler toward tip of petals, deep crimson eye, column pink, 3 in. long, peduncle 2 in., bracts 7, appressed, brownish, stigmas crimson. Not self seeder.

208:2 V. S. H. Parents: 99:1 X 51:5.

Erect, sparingly branched, dark gray bark, green twigs, profuse bloomer.

Leaves ovate, crenate or entire, acuminate, smooth, 1½-2¼ in. wide, 2¼-3 in. long, petiole 1 in.

Flower 5 in. wide, delicate crimson pink, slightly mottled with whitish, white band near throat, deep crimson eye, column white, 3 in. long, peduncle 3½ in., bracts 7 or 8, green erect, stigmas orange. Not self seeder.

211:1 V. S. H. Parents: Lillian Wilder X Mrs. Hassinger.

Rapid growth, good foliage, freely branching, smooth bark light gray, green on twigs.

Leaves ovate or cordate, serrate acuminate, pubescent, shiny, dark green, 2-3¼ in. wide, 3-5¼ in. long, petiole ¾ in. long.

Flower 6 in. wide, very pale pink, dark crimson eye, 2¾ in. wide, column pale, declined, 4¼ in. long, peduncle 2 in. long, bracts 6 or 7, green, recurved. Not self seeding.

211:2 has smaller crimson eye, column declined resting on lower petal, 4¼ in. long.

Leaves 3-lobed or 3-divided, twigs reddish brown.

211:3 has narrower petals, smaller 3-lobed leaves and column 4½ in. long.

211:4 V. S. H. Parents: Lillian Wilder X Mrs. Hassinger.

Erect central stem with ascending lateral branches, bark gray, brown on twigs.

Leaves ovate, dentate, wedge-shaped at base, acuminate, variegated, smooth, 2-3¾ in. wide, 3-5½ in. long, petiole 1-2 in. long.

Flower 4 in. wide, uniform pale crimson with large dark crimson eye, stigmas scarlet, column 4 in. long, crimson, involucre bracts 7, green. Characters of female parent dominant.

221:1 V. S. H. Parents: Narrow Petal White X Superba.

Profuse branching, excellent foliage, strong growth, gray bark, reddish on twigs.

Leaves ovate or cordate, dentate, acuminate, shiny, dark green, 2-3½ in. wide, 2½-4½ in. long, petiole 2 in. long.

Flower medium crimson pink, with darker veins and eye, 5 in. wide, peduncle 2½ in. long, column 3 in. long, bracts 6, brownish, stigmas appressed, deep crimson. Self seeder.

227:1 V. S. H. Parents: 1E X Superba.

Strong erect growth, fine foliage, dark gray bark, green twigs.

Leaves ovate, cordate, or 3-lobed, pubescent, dentate, 1½-3¼ in. wide, 2¼-4¼ in. long, petiole 1¼ in. long.

Flower 6¼ in. wide, rich crimson with darker eye, petals broad, column 4 in., peduncle 3½ in., bracts 6, wide, upright, green. Not self seeder.

234:1 V. S. H. Parents: Oahu Red X Ah Pio.

Erect, whip-like growth, excellent foliage, dark gray bark, reddish twigs.

Leaves ovate, irregularly serrate, acuminate, smooth, 1½-2½ in. wide, 3¼-5 in. long, petiole 1½ in. long.

Flower 4 in. wide, rich salmon pink, deep crimson throat, scarlet stigmas, column 3 in., peduncle 1¾ in., bracts 6-8, green, upright. Not self seeder.

240:1 V. S. H. Parents: 97:2 X Ethel L.

Ascending, slow growth, dark gray bark, green twigs, profuse bloomer, foliage dense on twigs.

Leaves lanceolate or ovate, entire or serrate, light green, smooth, thick, 1½-3 in. wide, 3-5 in. long, petiole 1 in.

Flower 6½ in. wide, delicate medium pink, with darker veins, deep crimson eye, whitish mottlings on petals, column pale yellow, 3½ in. long, peduncle 2 in. long, bracts 6 or 7, green, spreading, long. Not self seeding.

242:1 V. S. H. Parents: 63:6 X Superba.

Moderate growth, erect, dense foliage, dark gray bark, greenish twigs.

Leaves elliptical or ovate, serrate, entire or crenate, thick, smooth, 1¼-3 in. wide, 2-4½ in. long, petiole ½ in.

Flower 5 in. wide, delicate crimson pink, white throat, yellowish column 3½ in. long, peduncle 2 in. long, bracts 8 green, erect, stigmas orange. Not self seeder, but crosses.

250:1 G. P. W. Parents: Gertrude Ivers X Tantalus White(?)

Strong growth, upright, apple-like foliage, dark gray bark.

Leaves ovate, crenate, smooth, 2-3½ in. wide, 3-5 in. long, petiole 1 in. long.

Flower 6 in. wide, dark crimson in throat, nearly white near throat, becoming cream color with pale crimson tinge at tip of petals, stigmas

scarlet, spreading, filaments short, column $3\frac{1}{2}$ in. long, pale yellow, peduncle 4 in. long, bracts 6, green ascending. Not self seeding. One day flower.

259:1 V. S. H. Parents: Single Orange (flat) X Ethel L.

Slow growing, slender bush with ascending branches, with dark gray bark, brown on the twigs.

Leaves ovate, smooth, thick, light green, crenate on terminal third of margin, with blunt tip, $1\frac{1}{2}$ -2 in. wide, $2\frac{1}{2}$ in. long.

Flower $3\frac{1}{2}$ in. wide, with small crimson eye, pale crimson pink petal claws, outer end of petals salmon-pink, of crepe-like texture; column and anthers pale yellow, stigmas pale crimson, column 2 in. long. Self seeding. Characters of male parent dominant.

265:1 V. S. H. Parents: 500 X Tantalus White 38.

Freely branching, brown-red bark, vigorous grower.

Leaves ovate, dentate or deeply incised or 3-lobed, raised veins, dark green, $1\frac{3}{4}$ - $3\frac{1}{2}$ in. wide, $2\frac{1}{2}$ - $3\frac{3}{4}$ in. long, petiole 2 in. long.

Flower 3 in. wide, with pale crimson eye, white veins, petals light crimson on one side, nearly white on the other, anthers dark crimson, stigmas lighter, column $3\frac{1}{4}$ in. long, pale pink. Has Hassinger leaves and shape of flower of Tantalus White.

295:1 V. S. H. Parents: Single Pink (Station) X Ah Pio.

Dwarf, freely branching, dark gray bark, brownish twigs.

Leaves ovate, dentate, plaited, shiny, smooth, $1\frac{1}{2}$ in. wide, $2\frac{3}{4}$ in. long, petiole 1 in.

Flower $4\frac{1}{2}$ in. wide, very delicate crimson pink, deep crimson eye, column pink, 3 in. long, peduncle 1 in., bracts 5-7 green, spreading. Self seeder.

296:2 V. S. H. Parents: Coral X Pauahi Bishop.

Erect strong growth, sparsely branched, dark gray bark, green twigs.

Leaves elliptical, entire or crenate, smooth, thick, $1\frac{1}{2}$ in. wide, $1\frac{3}{4}$ - $2\frac{3}{4}$ in. long, petiole $\frac{1}{2}$ in.

Flower 5 in. wide, uniform medium crimson pink, darker veins and throat, column slender, $3\frac{3}{4}$ in. long, peduncle $2\frac{1}{2}$ in., bracts 6 or 7, short, erect. Not self seeder.

296:4 V. S. H. Parents: Coral X Pauahi Bishop.

Tall whip-like growth, drooping, slender branches, dark gray bark, reddish on twigs.

Leaves oblanceolate or ovate dentate, brown margin, smooth $\frac{1}{2}$ - $2\frac{3}{4}$ in. wide, $1\frac{3}{4}$ in. long, petiole $\frac{1}{2}$ - $1\frac{1}{4}$ in. long.

Flower $4\frac{1}{2}$ in. wide, pale crimson pink, with darker veins and throat, petals notched, narrow, column pale crimson, $3\frac{3}{4}$ in. long, peduncle 2 in. long, bracts 5, very short, brownish. Free seeding. Crosses readily.

297:6 V. S. H. Parents: Coral X Pauahi Bishop.

Rapid growth, free branching, dense foliage, brown-gray bark.

Leaves elliptical, ovate, entire, blunt or truncate, thick, dark green, smooth, $1\frac{1}{2}$ in. wide, $1\frac{1}{2}$ -2 in. long, petiole $\frac{1}{2}$ in. long.

Flower $4\frac{3}{4}$ in. wide, petals and column uniform pale crimson, stigmas

deep crimson, column $2\frac{3}{4}$ in. long, peduncle 1 in. long, bracts 7, short, green, appressed. Occasionally seeding.

297:2 has delicate pink flower with deep crimson eye, white mottling on one side of each petal. The cluster of stigmas is bent nearly at a right angle.

398:1 V. S. H. Parentage unknown.

Very vigorous, freely branching, fine foliage, smooth gray bark, reddish twigs.

Leaves broadly ovate, dentate, smooth, acuminate, shiny, dark green, $3\frac{3}{4}$ -4 in. wide, $3\frac{3}{4}$ -6 in. long, petiole 1-3 in.

Flower 6 in. wide, delicate crimson pink, dark crimson eye, column $4\frac{1}{2}$ in. crimson, peduncle $3\frac{1}{2}$ in., bracts 5-7, brownish, stigmas crimson appressed. Self seeder. Crosses.

401:1 V. S. H. Parentage unknown.

Erect, strong growth, branching from base, dark smooth bark, reddish twigs.

Leaves broadly lanceolate or ovate, serrate, smooth, acuminate, $1\frac{3}{4}$ -4 in. wide, $3\frac{1}{4}$ - $6\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in.

Flower 6 in. wide, medium crimson, deep crimson eye, crepe texture, column $3\frac{1}{2}$ in., peduncle $3\frac{3}{4}$ in., bracts 5 long, green. Not self seeder.

402:1 V. S. H. Parentage unknown.

Slow growth, branching from base, smooth light gray bark, greenish twigs, sparse foliage.

Leaves lanceolate or ovate, serrate slightly pubescent $2\frac{1}{2}$ in. wide, $3\frac{1}{4}$ - $4\frac{1}{4}$ in. long, petiole $\frac{1}{2}$ in.

Flower 5 in. wide, pale crimson, with deep crimson eye, fringed with narrow band of scarlet, column $3\frac{3}{4}$ in., white at tip, stigmas deep crimson, peduncle $3\frac{1}{4}$ in., bracts 5-8, short, green. Not self seeder.

403:1 V. S. H. Parents: Jamaica X Ethel L (?)

Very strong growth, fine foliage, profuse branching, smooth gray bark, red twigs.

Leaves ovate or cordate, dentate acuminate, shiny, dark green, $2\frac{3}{4}$ -5 in. wide, $4\frac{3}{4}$ -6 in. long, petiole $1\frac{1}{2}$ in.

Flower $5\frac{3}{4}$ in. wide, cream white with slight crimson tinge, white veins, deep crimson eye, column twisted, 4 in. long, pale crimson, peduncle 3 in., bracts 5-7, short, brownish. Not self seeder.

404:1 V. S. H. Parentage unknown.

Strong growth, excellent foliage, smooth light gray bark, red twigs.

Leaves ovate or cordate, acuminate, smooth, dentate, $2\frac{1}{2}$ - $4\frac{1}{4}$ in. wide, $3\frac{1}{2}$ - $5\frac{1}{4}$ in. long, petiole 1 in.

Flower $6\frac{1}{4}$ in. wide, delicate crimson pink, with darker veins and eye, column twisted, 5 in. long, peduncle $3\frac{1}{4}$ in., bracts 6 or 7, short brownish. not self seeding.

405:1 V. S. H. Parentage unknown.

Good growth, woody, brownish bark, green twigs, sparse foliage.



Hibiscus, variety 242: 1.



Hibiscus, variety 211: 4.



Mabel Curran Wilson
1913

Hibiscus, variety 90: 2.

Leaves lanceolate ovate, smooth, serrate, 1-2½ in. wide, 2-4¼ in. long, petiole ¼ in.

Flower 5 in. wide, uniform medium crimson with scarlet eye, crepe texture, column 4 in. long, peduncle 2¾ in. long, bracts 5 or 6, green appressed, stigmas spreading, deep crimson. Not self seeder.

414:1 V. S. H. Parents: Oahu Red X Station Pink.

Vigorous growth, upright, excellent foliage, dark gray bark, green twigs.

Leaves ovate, bluntly serrate, shiny, smooth, dark green, 1½-2¼ in. wide, 2¼-4 in. long, petiole 1 in.

Flower 4½ in. wide, rich medium crimson, with deep crimson eye, column 2½ in. long, declined, stigmas spreading, crimson, peduncle 1½ in. long, bracts 5 or 6, green, short, spreading. Not self seeding.

416:1 V. S. H. Parents: Narrow Petal White X (?)

Strong growth, good foliage, light ray bark, reddish twigs.

Leaves ovate, blunt, entire, shiny, smooth, 2-4 in. wide, 3-5¾ in. long, petiole 2 in.

Flower 5½ in. wide, very pale pink throughout, darker veins, column crimson, 4 in. long, peduncle 1¼ in. long, bracts 5 or 6, red, short. Not self seeder.

417:1 V. S. H. Parents: Cooperi X Ah Pio.

Dwarf, profuse branching, excellent foliage, light gray bark, brown twigs.

Leaves lanceolate or ovate, smooth, shiny, wavy margins, 1¾-3½ in. wide, 3¾-6¾ in. long, petiole 2 in.

Flower 5 in. wide, delicate cream-salmon pink, dark crimson eye, column pink 2¾ in. long, peduncle 1½ in. long, bracts 6-9 green, very narrow, recurved. Not self seeder.

418:1 V. S. H. Parentage unknown.

Strong growth, good, dense foliage, freely branching, light gray, smooth bark, brownish twigs.

Leaves ovate, serrate, acuminate, smooth, 2¼-3½ in. wide, 3-4¾ in. long, petiole 1¼ in.

Flower 5½ in. wide, uniform, delicate crimson pink, slightly darker veins and throat, crimson column 4¼ in. long, peduncle 2 in. long, bracts 6, reddish, spreading. Not self seeding.

419:1 V. S. H. Parents: Coral X Narrow Petal White.

Medium growth, erect, light gray smooth bark, brownish twigs.

Leaves elliptical or ovate, serrate, entire or crenate, smooth, 1¼-2¼ in. wide, 2-3 in. long, petiole ½ in.

Flower 5½ in. wide, delicate crimson pink with darker veins and throat, petals notched, column slender, 4½ in. long, peduncle 2 in. long, bracts 6-8, red, short. Not self seeder; crosses. •

420:1 V. S. H. Parents: (?) X Hassinger.

Strong growth, profuse bushy branching, smooth dark gray bark, green twigs.

Leaves elliptical, smooth, serrate on outer third of margin, $1\frac{1}{2}$ - $2\frac{3}{4}$ in. wide, $2\frac{1}{4}$ - $3\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in.

Flower $5\frac{1}{4}$ in. wide, rich crimson pink with large blackish crimson eye, column crimson, 3 in. long, peduncle 2 in. long, bracts 6 or 7, green, upright, stigmas, small, closely appressed. Not seeder.

421:1 V. S. H. Parentage unknown.

Dwarf, dark gray bark, reddish twigs, dense foliage, freely branching. Leaves ovate, serrate, thick, smooth, dark green, $1\frac{1}{2}$ -2 in. wide, $2\frac{1}{2}$ -3 in. long, petiole $\frac{1}{2}$ in.

Flower 5 in. wide, brilliant crimson pink, white throat, column $2\frac{3}{4}$ in. long, peduncle $1\frac{3}{4}$ in., bracts 5 or 6, green, spreading stigmas deep scarlet. Not self seeder.

424:1 C. M. C. Parentage unknown.

Slow growth, freely branching, light bark, brownish twigs.

Leaves ovate, crenate, smooth, thick, $2\frac{1}{4}$ - $3\frac{1}{4}$ in. wide, $3\frac{1}{2}$ - $4\frac{1}{2}$ in. long, petiole 1 in.

Flower $8\frac{1}{2}$ in. wide, pale crimson pink, petal claw very narrow, deep crimson eye, $3\frac{3}{4}$ in. wide, column crimson, $4\frac{3}{4}$ in. long, peduncle $2\frac{1}{2}$ in., bracts 6, brownish, erect. Not self seeder.

425:1 C. M. C. Parentage unknown.

Strong growth, light bark, red twigs, freely branching.

Leaves ovate, faintly serrate, smooth, $2\frac{1}{4}$ - $3\frac{1}{4}$ in. wide, 3- $4\frac{1}{4}$ in. long, petiole $1\frac{3}{4}$ in.

Flower 7 in. wide, nearly white pink, large stellate crimson eye, column crimson 5 in. long, peduncle $1\frac{1}{2}$ in., bracts 6, brownish, spreading. Not seeder.

426:1 C. M. C. Parents: Oahu Red X Ah Pio.

(Same cross as V. S. H. 234.)

Low growth, light bark, red twigs, excellent foliage.

Leaves ovate, wavy, crenate, smooth, shiny, dark green, $2\frac{1}{2}$ - $3\frac{3}{4}$ in. wide, $3\frac{3}{4}$ - $5\frac{3}{4}$ in. long, $2\frac{1}{2}$ in. petiole.

Flower $5\frac{1}{2}$ in. wide, pale crimson pink, saffron on outer edge, column crimson, $3\frac{1}{2}$ in. long, peduncle $3\frac{1}{4}$ in., bracts 5, green, erect.

426:2 (same cross) has more nearly entire leaves, flower 4 in., uniform salmon pink, small crimson eye.

426:3 (same cross) has larger leaves, uniform salmon pink, crimson throat.

428:1 C. M. C. (Madame Vicarino.) Parentage unknown.

Vigorous growth, freely branching, light bark, red twigs, excellent foliage.

Leaves ovate or 3-lobed, wavy, dentate, red margined, red veins, acuminate, $2\frac{3}{4}$ -4 in. wide, $3\frac{1}{2}$ -5 in. long, petiole $1\frac{3}{4}$ in.

Flower $5\frac{1}{2}$ in. wide, pale crimson pink, darker veins and throat, petals recurved, column pale $3\frac{1}{2}$ in., peduncle 3 in., bracts 6-8, reddish erect. Not seeder.

428:2 (same cross) has crenate, blunt leaves, white flowers with dark crimson eye, flower $5\frac{1}{2}$ in. wide.

433:1 J. A. C. Parents: Coral X W. M. G. A.

Strong growth, branching from base, light smooth bark, brownish twigs.

Leaves ovate, dentate, acuminate, smooth, dark green, $1\frac{3}{4}$ - $3\frac{1}{2}$ in. wide, $3\frac{1}{4}$ -4 in. long, petiole 2 in.

Flower 5 in. wide, uniform pale crimson pink, deep crimson eye, petals notched and crepe-like, column slender, pink, $3\frac{1}{4}$ in. long, peduncle $2\frac{1}{4}$ in., bracts 6, short, recurved.

434:1 J. A. C. Parents: Coral X W. M. G. 14.

Upright, sparingly branched, dark bark, red twigs, excellent foliage.

Leaves ovate, crenate, serrate, acuminate, smooth, $1\frac{3}{4}$ - $2\frac{3}{4}$ in. wide, $3\frac{1}{4}$ -4 in. long, petiole 2 in.

Flower $6\frac{1}{2}$ in. wide, medium crimson pink (cerise), deep or scarlet eye, petals notched, column 4 in., peduncle $3\frac{1}{2}$ in., bracts 7, brownish, very short, spreading.

434:2 has larger leaves, green twigs, and flower uniform scarlet-crimson pink, with pale crimson veins.

438:1 J. A. C. Seedling from Ah Pio.

Habit of growth like ordinary Ah Pio, freely branching, good foliage, green twigs.

Leaves lanceolate, serrate, smooth, acuminate, dark green, 2-3 in. wide, $3\frac{3}{4}$ - $5\frac{1}{4}$ in. long, petiole $2\frac{1}{2}$ in.

Flower 5 in. wide, pale salmon pink, cream-white veins, deep crimson eye, column pale yellow $2\frac{1}{2}$ in., peduncle $1\frac{3}{4}$ in., bracts 6-9, green, spreading, narrow, stigmas pale salmon pink.

534 G. R. (Cecilia). Parents: Hassinger X Rice White (?)

Good growth, light bark, red twigs, excellent foliage.

Leaves ovate, wavy-dentate, smooth, shiny, dark green, 2-3 in. wide, $3\frac{1}{2}$ - $4\frac{1}{2}$ in. long, petiole $1\frac{1}{2}$ in. long.

Flower 6 in. wide, pale crimson-pink, deeper veins, large deep crimson eye, column pink, $3\frac{1}{2}$ in. long, peduncle $1\frac{1}{2}$ in. long, bracts 7, green, erect. Not self seeder.

535 A. G. 68 (Annie Hobron). Parents: Semidouble Fiji X Waianae White.

Vigorous growth, excellent foliage, light bark, red twigs.

Leaves ovate, cordate at base, dentate, smooth, dark green, 3-5 in. wide, 4-6 in. long, petiole $2\frac{1}{2}$ in. long.

Flower 6 in. wide, uniform medium crimson-pink, crepe texture, deeper veins and eye, column $4\frac{1}{2}$ in. long, crimson, peduncle $2\frac{1}{2}$ in. long, bracts 6, recurved brownish. Not self seeder.

439:1 C. M. C. (G. P. Wilder). Parents: (?) X Kauai White.

Slow growth, smooth light gray bark, brownish twigs, sparse branching, good foliage.

Leaves elliptical ovate, serrate, shiny, smooth, $3\frac{3}{4}$ in. wide, 5 in. long, petiole red, $1\frac{1}{2}$ in. long.

Flower 9 in. wide, pale delicate crimson pink, with deeper veins and eye, column pink, 4 in. long, peduncle 3 in. long, bracts 6 or 7, green, erect. Crosses; not self seeder.

441:1 C. M. C. Parentage unknown.

Low growth, freely branching, smooth light gray bark, red twigs.

Leaves ovate, sparingly serrate, pubescent underneath, 2-2½ in. wide, 3-3½ in. long, petiole ¾ in.

Flower 5¼ in. wide, pale crimson pink, saffron on limb, dark crimson eye, column 3 in., peduncle 1¾ in., bracts 6 or 7, short, recurved. Not seeder.

442 C. M. C. Parents: Pauahi Bishop X Ah Pio (?)

Low growth, freely branched, smooth light gray bark, red twigs.

Leaves ovate, serrate, smooth, acuminate, 1¾-3¼ in. wide, 2¾-4½ in. long, petiole 1¼ in.

Flower 5 in. wide, pale crimson pink, darker veins, deep crimson eye, one side of each petal yellowish, column 3 in., peduncle 2¼ in., bracts 5 or 6, green, spreading. Not seeder.

445:1 C. M. C. Parentage unknown.

Low growth, sparingly branched, erect, fine foliage, dark bark, green twigs.

Leaves ovate, dentate, acuminate, dark green, smooth, 3½-4¼ in. wide, 5-5¾ in. long, petiole 1¾ in. long.

Flower 8½ in. wide, uniform medium crimson pink, deep crimson eye, stigmas large, scarlet, column 3¼ in. long, peduncle 5 in. long, bracts 6 or 7, green erect. Not self seeder.

453 C. M. C. (Alice Cooke.) Parents: (?) X Kauai White.

Good growth, erect, freely branching, dark gray bark, green twigs.

Leaves 3¼-4¼ in. wide, 4-6 in. long, petiole ½ in., elliptical-ovate, bluntly dentate, sometimes 3-lobed, smooth, thick.

Flower 5¾ in. wide, delicate crimson pink, darker on one side of each petal, darker veins and eye, column 3 in. long, bracts 7-8, green, upright. Not self seeder.

454 C. M. C. (Anna Cooke.) Parents: Common Red X Mrs. Hassinger.

Vigorous growth, fine foliage, dark gray bark, reddish twigs, freely branching.

Leaves ovate, dentate, shiny, dark green, smooth, 2¼-3 in. wide, 3½-5 in. long, petiole 1½ in. long.

Flower 4½ in. wide, delicate crimson pink, lighter on limb, deep crimson eye, column white at tip, 3 in. long, peduncle 3 in. long, bracts 6 or 7, green, short. Not self seeder.

455 (Cooperi.) Introduced.

Closely branched, moderately strong growth, bark dark gray, red on twigs.

Leaves lanceolate, irregularly serrate, variegated (green, white and pink), smooth, 1-2½ in. wide, 3-4¾ in. long, petiole 1½ in. long.

Flower medium crimson-scarlet, pale near throat, with dark vermilion eye, column pale crimson, 3¼ in. long, stigmas spreading, crimson, flower expanse 5 in., peduncle 2½ in. long, involucre bracts 6 or 7, greenish white, recurved, 1 in. long. Self seeder; crosses readily.

456 (Double Cerise.) Introduced.

Slow growth, upright branching, dark gray bark, green on twigs.

Leaves ovate, entire or serrate, smooth, dark green, $1\frac{3}{4}$ - $2\frac{1}{4}$ in. wide, $3\frac{3}{4}$ in. long, petiole 1 in. long.

Flower full double, 6 in. wide, uniform crimson pink (cerise), peduncle 3 in. long, 5 or 6 bracts, green.

457 (Double Salmon.) Introduced.

Tall, freely branching, slender drooping twigs, branches without foliage except near tips, bark light gray.

Leaves lanceolate or ovate, serrate, smooth, light green, $1\frac{1}{2}$ in. wide, $1\frac{1}{2}$ - $2\frac{1}{4}$ in. long, $\frac{1}{4}$ in. petiole.

Flower double, 3 in. wide, delicate pink, petal claws crimson, peduncle $1\frac{1}{4}$ in. long, bracts 5 or 6, short green. Neither seeds nor crosses.

Another form has flower $3\frac{1}{2}$ in. wide, delicate scarlet pink with no yellow admixture.

458 G. P. W. (Edna Scott.) Sport of Common Red X Single Cerise.

Slow growth, woody, dark bark, sparse branching.

Leaves ovate, entire acuminate, smooth, light green, $1\frac{1}{2}$ - $2\frac{1}{2}$ in. wide, $3\frac{3}{4}$ in. long, petiole 1 in.

Flower $5\frac{3}{4}$ in. wide, uniform cerise pink with white veins and throat, filaments short, column pale cerise, 3 in. long, peduncle $2\frac{3}{4}$ in., bracts 7, short, green. Not self seeder.

459 (*H. youngianus*, Hauhelewai), Native.

Low, bushy growth, pubescent or spiny throughout, freely branched.

Leaves cordate, finely serrate, acuminate, pubescent, gray green, $2\frac{1}{4}$ - $3\frac{1}{2}$ in. wide, $2\frac{1}{2}$ - $3\frac{3}{4}$ in. long, petiole $1\frac{1}{2}$ in. long.

Flower 3 in. wide, funnel-shaped, pink-lavender, small crimson eye, column deep crimson, $1\frac{1}{4}$ in. long, peduncle $\frac{1}{2}$ in., anthers along whole length of column, filaments very short, calyx ribbed, bracts 10-12, stiff, spreading, often bifid at tip. Free seeder.

Prof. J. W. Macneil attempted to cross *H. brackenridgei* on this species but is not yet certain of success.

460 (Fijian Crimson, Single.) Introduced by J. D. McInerny.

Slow growing, sparsely branching, with smooth gray bark throughout.

Leaves elliptical or narrowly ovate, coarsely dentate, acuminate, smooth, light green, prominent veins, $1\frac{1}{2}$ in. wide, 2-3 in. long, petiole $1\frac{1}{2}$ in. long.

Flower dark crimson in throat, gradually paling to light crimson pink at border, 3 in. wide, funnel-shaped, with recurved petals, column 3 in. long, pale crimson, stigmas far protruding, peduncle 1 in. long, involucre bracts 6 or 7, green. Poor seeder.

461 (Fijian Double Crimson.) Introduced by J. D. McInerny.

Low growth, upright, sparsely branched, dense foliage, bark light gray, green twigs.

Leaves lanceolate or ovate, smooth, crenate, $1\frac{1}{2}$ in. wide, $2\frac{1}{2}$ - $3\frac{1}{2}$ in. long, petiole 1 in.

Flower $2\frac{1}{2}$ in. wide, double, petals crimson pink, with white veins and dark claws, peduncle 2 in., bracts 8, short, green, recurved. Not self seeder.

462 (Kapiolani Park Pink.) Introduced.

Dwarf, sparsely branched, dark gray bark, green twigs.

Leaves ovate, entire or serrate, smooth, $1\frac{3}{4}$ - $2\frac{1}{4}$ in. wide, $2\frac{1}{2}$ - $3\frac{3}{4}$ in. long, petiole 1 in.

Flower $4\frac{1}{2}$ in. wide, very pale pink, white veins and throat, column $2\frac{1}{2}$ in., peduncle $2\frac{1}{2}$ in., bracts 5-7, green, erect, stigmas orange-scarlet. Seeds and crosses freely.

463 C. M. C. (Lila Cooke.) Parents: Pauahi Bishop X Mrs. Hassinger.

Strong growth, erect, light gray bark, green twigs.

Leaves ovate, or 3-lobed, dentate, smooth, shiny, dark green, $2\frac{3}{4}$ - $3\frac{1}{2}$ in. wide, $3\frac{1}{2}$ - $4\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in.

Flower 7 in. wide, deep uniform crimson, black-crimson eye, column 3 in. long, peduncle $1\frac{1}{2}$ in. long, bracts 5-7, short, green, erect. Not self seeder.

464 G. P. W. (Lillian Wilder.) Parents: Beatrice X Knudsen White.

Strong growth, erect, freely branching, light gray bark, brownish twigs.

Leaves ovate, serrate, slightly pubescent, shiny, dark green, 2 - $3\frac{3}{4}$ in. wide, $3\frac{1}{2}$ - $5\frac{1}{4}$ in. long, petiole 2 in.

Flower 7 in. wide, delicate crimson pink with darker veins and crimson eye, column crimson, $3\frac{1}{2}$ in., peduncle $2\frac{1}{4}$ in., bracts 6-8, slender, spreading, green. Sometimes self-seeds; crosses freely.

465 (Pauahi Bishop, common pink, *Hibiscus cameronii*.) Introduced.

Common in hedge use, vigorous, freely branching, bark dark gray, green on twigs, good foliage.

Leaves ovate or cordate, dentate, smooth, dark green, shiny, 2-4 in. wide, $2\frac{1}{2}$ - $4\frac{1}{2}$ in. long, petiole 1 in. long.

Flower 7 in. wide, pure medium crimson pink, one side of each petal whitish near base, petals wide spread, column medium crimson, $3\frac{1}{2}$ in. long, curved downward, stigmas spreading, deep crimson, bracts 6, green, appressed, peduncle 4 in. long. Crosses freely.

466 (Peachblow.) Introduced.

Vigorous, freely branching, lower branches trailing, bark dark gray, green on twigs.

Leaves ovate, dentate, acuminate, smooth, light green, $1\frac{1}{2}$ -3 in. wide, 2-5 in. long.

Flower double, 5 in. wide, uniform delicate crimson pink, dark crimson eye, inner small petals whitish, anthers yellow. Does not seed; may be used as a male parent in crossing.

467 G. P. W. (Sarah Wilder.) Parents: Ally Hatch X Mrs. Hassinger.

Tall, vigorous, good foliage, dark gray bark, reddish twigs.

Leaves ovate, dentate, smooth, dark green, $3\frac{1}{4}$ -4 in. wide, $4\frac{1}{2}$ - $6\frac{1}{2}$ in. long, petiole 2 in. long.

Flowers 7 in. wide, dark rich crimson at throat, paling to uniform medium crimson, crepe-like texture, petals recurved at throat, column $3\frac{1}{2}$ in. long, crimson, peduncle 3 in. long, bracts 5 or 9, wide, brownish. Not self seeding.

468 (Single Cerise.) Introduced.

Slow growth, sparse horizontal branching, dark gray bark.

Leaves oval or orbiculate, wedge-shaped at base entire or crenate, rarely 3-lobed, smooth, thick, light green, $1\frac{1}{4}$ -2 in. wide, $2-2\frac{1}{2}$ in. long, petiole $1\frac{1}{2}$ in. long.

Flower cerise pink (pale crimson), funnel-shaped, 3 in. wide, throat and veins white, column 3 in. long, cream-color, stigmas spreading, crimson, peduncle $1\frac{1}{4}$ in. long, involucre bracts 8, appressed. Seeds freely; crosses readily, type of flower prepotent in crossings.

469 (Station Pink). Introduced from Germany.

Slow growth, woody, dark gray bark, sparse foliage.

Leaves broadly ovate, light green, smooth, crenate, $\frac{3}{4}$ - $1\frac{1}{4}$ in. wide, $1-1\frac{1}{4}$ in. long, nearly sessile.

Flower 4 in. wide, pale crimson pink, darker veins and throat, stigmas spreading, deep crimson, column white, $2\frac{1}{2}$ in. long, peduncle $1\frac{1}{2}$ in. long, bracts 7, green, appressed. Self seeder; crosses freely.

470 (G. P. W. 11.) Parents: Coral X Nuuanu White.

Erect, sparse branching, light grayish green bark, green twigs.

Leaves ovate or orbicular, serrate, pubescent, light green, $2\frac{3}{4}$ - $3\frac{1}{2}$ in. wide, $4-4\frac{3}{4}$ in. long, petiole $1\frac{1}{4}$ in.

Flower 6 in. wide, pale crimson pink, with darker veins and throat, stigmas far exserted, crimson, column declined, $3\frac{3}{4}$ in. long, peduncle 3 in., bracts short, 6, green. Not self seeder.

471 C. M. C. Parents: Common Red X Mrs. Hassinger.

Low growth, freely branching, light bark, green twigs.

Leaves ovate, dentate, smooth, shiny, light green, acuminate, $1\frac{3}{4}$ - $2\frac{1}{2}$ in. wide, $2\frac{1}{2}$ - $3\frac{1}{2}$ in. long, petiole $\frac{3}{4}$ in.

Flower 5 in. wide, uniform salmon pink, dark crimson eye, column $3\frac{1}{4}$ in., peduncle 2 in., bracts 6 or 7, green, erect. Not seeder.

472 C. M. C. Parentage unknown.

Slow growth, free branching, dark gray bark, green twigs.

Leaves ovate, serrate, smooth, dark green, $2\frac{1}{4}$ - $3\frac{1}{4}$ in. wide, $3\frac{1}{4}$ - $4\frac{1}{2}$ in. long, petiole $1\frac{1}{2}$ in.

Flower 6 in. wide, pale pink (nearly white), darker veins and large eye, column 4 in., peduncle 3 in., bracts 5-6, reddish erect, stigmas, scarlet appressed. Not seeder.

473 C. M. C. Parents: Coral X Mrs. Hassinger.

Dwarf, light gray bark, green twigs, sparse foliage.

Leaves lanceolate, serrate, smooth, light green, $\frac{3}{4}$ - $1\frac{1}{2}$ in. wide, $1\frac{1}{2}$ -2 in. long, petiole $\frac{1}{2}$ in.

Flower 4 in. wide, uniform medium crimson pink, petals notched, column slender, $3\frac{1}{2}$ in. long, $2\frac{3}{4}$ in. peduncle, bracts 6 or 7, very short, recurved. Not seeder.

474 C. M. C. Parents: (?) X Kauai White.

Dwarf, rough dark gray bark, sparse foliage and branching.

Leaves ovate serrate, acuminate, smooth, light green, $2\frac{1}{2}$ - $3\frac{1}{2}$ in. wide, $2\frac{3}{4}$ - $4\frac{1}{4}$ in. long, petiole $1\frac{1}{2}$ in.

Flower 5 in. wide, uniform pale pink, crepe texture, small crimson eye, column 3 in., peduncle 2 in., bracts 6, green spreading.

475 C. M. C. Parentage unknown.

Strong growth, good foliage, dark bark, red twigs.

Leaves ovate, serrate, smooth, shiny, $1\frac{3}{4}$ -3 in. wide, $2\frac{3}{4}$ - $4\frac{1}{2}$ in. long, petiole 1 in. long.

Flower $7\frac{1}{2}$ in. wide, pale crimson pink, darker veins and large eye, column pink, $4\frac{1}{4}$ in. long, peduncle 3 in., bracts 6 or 7, green, spreading. Not seeder.

476:1 W. M. G. Parents: Common Double Red X Narrow Petal White.

Strong growth, profusely branched from base, light gray bark, brownish twigs; reaching 15 ft. or more in height.

Leaves ovate, smooth, serrate or crenate, light green, $1\frac{1}{2}$ - $3\frac{3}{4}$ in. wide, $2\frac{1}{2}$ - $4\frac{3}{4}$ in. long, petiole $\frac{1}{2}$ in.

Flower $6\frac{1}{2}$ in. wide, double, delicate crimson pink, salmon on outer limb, pink veins, deep crimson petal claws, peduncle $\frac{3}{4}$ in. long, bracts 6, green, spreading, delicate aroma. Not self seeder. Bred 1902.

476:2 W. M. G. (same cross) is semi-double, has crenate leaves, 2-3 in. wide, $3\frac{1}{4}$ - $4\frac{1}{2}$ in. long, petiole $1\frac{1}{2}$ in., flower $5\frac{1}{4}$ in. wide, delicate crimson pink (no salmon), large crimson eye, column $2\frac{3}{4}$ in., peduncle 2 in., bracts 6, recurved.

477 W. M. G. Parents: Narrow Petal White X Ah Pio.

Spreading bush, numerous pendulous branches, rough gray bark, reddish twigs.

Leaves lanceolate, finely crenate, acuminate, smooth, $1\frac{1}{2}$ -2 in. wide, 3 - $3\frac{1}{2}$ in. long, petiole $\frac{3}{4}$ in.

Flower $5\frac{1}{2}$ in. wide, whitish crimson pink, with salmon tinge, deep crimson eye, column pink $3\frac{1}{2}$ in., peduncle $1\frac{1}{4}$ in., bracts 6 or 7, reddish, narrow, recurved. Not seeder.

478 W. M. G. Parents: Ah Pio X Narrow Petal White.

Moderate growth, dark bark, freely branching, good foliage.

Leaves elliptical or obovate, serrate, acuminate, smooth, shiny, $1\frac{1}{2}$ - $1\frac{3}{4}$ in. wide, 3 - $3\frac{1}{2}$ in. long, nearly sessile.

Flower $5\frac{1}{2}$ in. wide, cream-white, yellowish toward border, pink veins, crimson eye, column pink, 3 in., peduncle $\frac{3}{4}$ in.

479:1 W. M. G. Parents: Common Double Red X Narrow Petal White.

Strong growth, freely branching, dark gray bark, green twigs.

Leaves ovate, dentate, acuminate, smooth, shiny, dark green, 3 - $5\frac{1}{2}$ in. wide, $4\frac{1}{2}$ -8 in. long, petiole $2\frac{1}{4}$ in.

Flower double, $5\frac{1}{2}$ in. wide, pale crimson pink (slightly deeper than Peachblow) petal claws rich crimson, peduncle $1\frac{1}{2}$ in. long, bracts 8, short, green recurved, calyx bell-shaped.

479:2 W. M. G. (same cross) has slower growth, lighter green leaves, ovate, 2 - $3\frac{1}{4}$ in. wide, $3\frac{1}{2}$ - $5\frac{1}{4}$ in. long, petiole $1\frac{1}{2}$ in.

480 W. M. G.. (Mattie Giffard.) Parents: Common Double Red X Narrow Petal White.

Vigorous growth, spreading branches, dark bark, reddish twigs, good foliage.

Leaves elliptical or ovate, serrate, crenate, smooth, shiny, raised veins, 3-4 $\frac{3}{4}$ in. wide, 4 $\frac{1}{2}$ -6 $\frac{1}{2}$ in. long, petiole 2 $\frac{1}{2}$ in.

Flower 8 in., delicate crimson pink with paler veins, salmon on limb of petals, deep crimson eye, pale crimson near throat, column crimson 5 $\frac{1}{2}$ in., peduncle 1 $\frac{1}{2}$ in., bracts 7 or 8, green, spreading, wide calyx. Not seeder.

511:2 (A. G. 45.) Parents: Cleghorn Red X Rice White.

Rapid growth, dark bark, brownish twigs, upright branching.

Leaves ovate or orbicular, crenate, dark green, pubescent, 2-2 $\frac{3}{4}$ in. wide, 2 $\frac{1}{4}$ -2 $\frac{3}{4}$ in. long, petiole 1 in.

Flower 7 in. wide, dull Naples yellow with pink tinge, pink veins and deep crimson eye, column pink, 3 $\frac{1}{2}$ in., peduncle 1 $\frac{1}{2}$ in. long, bracts 8-10, green, upright.

511:3 (same cross) has lighter bark, larger leaves, more pubescent, flower pale crimson pink with deep crimson eye.

511:1 A. G. (Agnes Galt.) Vigorous growth, leaves ovate, dentate, 3-4 $\frac{1}{2}$ in. wide, 3-4 $\frac{3}{4}$ in. long, petiole 2 in. long.

Flower 7 in. wide, cerise pink, darker in throat, petals wide, recurved, column pink 3 in., peduncle 3 $\frac{3}{4}$ in., bracts 8 or 9, green, erect.

512:1 (A. G. 26.) Parents: Peachblow X Rice White.

Low growth, freely branching, dark gray bark, brownish twigs.

Leaves lanceolate or elliptical, crenate, dark green, smooth, 1 $\frac{3}{4}$ -2 in. wide, 3-4 in. long, petiole 1 $\frac{3}{4}$ in. long.

Flower double, 5 in. wide, pale pink with 3 or 4 clusters of small yellow petals, peduncle 1 in., bracts 6-9, green appressed.

514:1 (A. G. 71.) Parents: Kapiclan Park Pink X Jamaica.

Low growth, sparingly branched, dark bark, brownish twigs.

Leaves ovate, irregularly toothed, slightly pubescent, 2 $\frac{1}{4}$ -3 $\frac{1}{2}$ in. wide, 3 $\frac{1}{4}$ -4 $\frac{1}{2}$ in. long, petiole 2 $\frac{1}{4}$ in. long.

Flower 5 $\frac{1}{4}$ in. wide, pale crimson pink, darker veins, deep crimson eye, column white, 2 $\frac{3}{4}$ in. long, peduncle 2 in. long, bracts 6-8, green, erect, stigmas orange, spreading. Not self seeder.

517. Introduced.

Strong growth, 12 ft. high, upright, freely branching, dark gray bark, green twigs.

Leaves ovate, serrate, acuminate, smooth, thick, shiny, 2-3 in. wide, 2 $\frac{3}{4}$ -4 $\frac{1}{4}$ in. long, petiole 1 in.

Flower 6 in. wide, uniform pale crimson (cerise), dark crimson eye, column pink, 3 in. long peduncle 2 $\frac{1}{2}$ in., bracts 6-8, green, upright. Not self seeder.

521:1 C. M. C. (Choi San.) Parents: (?)

Low growth, sparingly branched, dark bark, reddish twigs.

Leaves ovate, serrate-crenate, acuminate, smooth, shiny, 1 $\frac{3}{4}$ -2 $\frac{1}{2}$ in. wide, 3 $\frac{1}{4}$ -4 in. long, petiole 1 in. long.

Flower $8\frac{1}{4}$ in. wide, pale pink throughout, either side of petal claw whitish, crepe texture, column crimson, 4 in. long, peduncle $\frac{3}{4}$ in. long, much yellow on back of petals. Not self seeder.

522:1 C. M. C. Parents: (?)

Erect, few branches, light bark, red twigs.

Leaves lanceolate or ovate, serrate, smooth, acuminate, $1\frac{1}{4}$ - $2\frac{1}{4}$ in. wide, $2\frac{3}{4}$ - $3\frac{1}{2}$ in. long, petiole 1 in. long.

Flower 6 in. wide, crimson, darker in throat, petals wavy obovate, column $3\frac{1}{2}$ in. long, peduncle $3\frac{1}{2}$ in. long, bracts 6, short, green. Not self seeder.

524:1 C. M. C. Parents: (?)

Slow growth, sparse branching, light bark, green twigs.

Leaves elliptical, entire, smooth, shiny, acuminate, $1\frac{3}{4}$ - $2\frac{1}{4}$ in. wide, $3\frac{1}{2}$ in. long, petiole 2 in. long.

Flower $4\frac{1}{2}$ in. wide, palest crimson pink (nearly white) crimson veins on back, no eye, column crimson, 3 in. long, peduncle 1 in. long, bracts 7, green, spreading. Not self seeder.

524:2 has larger crenate leaves, and smaller scarlet-pink flower, with spreading stigmas.

525:1 C. M. C. Parents: (?)

Low growth, profuse branching, erect, light bark, green twigs.

Leaves lanceolate-ovate or 3-lobed, light green, smooth, toothed, $1\frac{1}{2}$ -2 in. wide, 3-4 in. long, petiole $1\frac{1}{2}$ in.

Flower $5\frac{1}{2}$ in. wide, medium crimson-pink, paler veins, deep crimson eye, column pale, $3\frac{1}{2}$ in. long, peduncle 2 in. long, bracts 7, green, erect. Not self seeder.

527:1 C. M. C. Parents: (?)

Good growth, freely branching, fine foliage, light bark, green twigs.

Leaves ovate, crenate, smooth, dark green, 3-4 in. wide, 4-5 in. long, petiole 2 in. long.

Flower 7 in. wide, delicate crimson pink, deep crimson eye, column pink 4 in. long, peduncle 2 in. long, bracts 6, green, spreading. Not self seeder.

529 (Ethel L.) Seedling of unknown parentage found in yard of C. J. Ludwigsen.

Vigorous growth, profuse branching, light bark, red twigs, foliage dense on end of branches.

Leaves lanceolate, serrate, acuminate, smooth, $1\frac{1}{2}$ in. wide, 3-4 in. long, petiole $\frac{1}{2}$ in. long.

Flower $5\frac{1}{4}$ in. wide, pinkish white with crimson veins and small deep crimson eye, column pink, 3 in. long, peduncle $1\frac{1}{2}$ in. long, bracts 6, brownish, spreading. Not self seeder, but used as female parent.

533:1 V. S. H. (1E) Parents: Rosie Tenney X Single Cerise.

Low bush, freely branching, foliage on end of branches, dark bark, green twigs.

Leaves elliptical or ovate, smooth, shiny, thick, $1\frac{1}{4}$ -2 in. wide, $1\frac{3}{4}$ - $2\frac{1}{2}$ in. long, petiole $\frac{3}{4}$ in. long.

Flower 6 in. wide, pale cerise, white veins and throat, column pale yellow, 3 in. long, peduncle $2\frac{1}{4}$ in. long, bracts 8, green, erect. Seeds and crosses freely.

540 J. W. M. Parents: 156:1 X(Copperleaf X Cooperi.)

Vigorous, freely branching, light bark, brownish pubescent twigs.

Leaves ovate, crenate-serrate, pubescent, 3 in. wide, 5 in. long, petiole 2 in. long.

Flower 6 in. wide, very pale crimson pink, crimson eye, column curved, 3 in. long, bracts 7, green spreading, peduncle $1\frac{1}{2}$ in. long.

562 C. M. C. Parents:

Strong growth, dark bark, green twigs, good foliage.

Leaves ovate-cordate, crenate, smooth, dark green, $3\text{--}4\frac{1}{2}$ in. wide, $4\text{--}5\frac{1}{2}$ in. long, petiole 3 in. long.

Flower 4 in. wide, medium crimson pink with paler veins and throat, column $2\frac{1}{2}$ in. long, peduncle $4\frac{1}{2}$ in. long, bracts 8, green, spreading.

(Rosie Tenney) (Copperleaf)

463 J. W. M. Parents: (X) X (X)
(Tantalus White) (Cooperi)

Rapid growth, moderate branching, dark bark, green twigs.

Leaves ovate, crenate, smooth, shiny, 2 in. wide, $3\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower 7 in. wide, medium crimson pink, paler near eye, deep carmine eye, column 4 in. long, peduncle $\frac{1}{2}$ in. long, bracts 5-8, green, spreading, back of petals white-blotched.

565 A. G. Parents: Double Cerise X Semidouble Salmon.

Low habit of growth, profuse branching, dense foliage.

Leaves ovate or 3-lobed, serrate, acuminate, smooth, mottled, $2\frac{1}{2}$ in. wide, $3\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower $3\frac{1}{2}$ in. wide, crimson pink ground color, wide white vein pattern, midrib of petals white to base, deep carmine on either side of petal claw, petals wavy-folded, column $3\frac{1}{2}$ in. long, peduncle $2\frac{1}{2}$ in. long, bracts 6, green, spreading.

568 J. K. Parents: Peachblow X Mrs. Hassinger.

Moderate growth, freely branching, light bark, brownish twigs, good foliage.

Leaves ovate dentate, shiny, dark green, pubescent beneath, 3 in. wide, 6 in. long, petiole $2\frac{1}{2}$ in. long.

Flower $6\frac{1}{2}$ in. wide, double, uniform medium crimson pink, petal claws deep crimson, inner petals in small clusters, peduncle $4\frac{1}{2}$ in. long, bracts 8, green, erect.

614 G. R. (Charlotte Rice). Parents: Rice White X Park Pink.

Freely branching, erect, excellent foliage, reddish twigs.

Leaves broadly lanceolate, dentate, slightly pubescent, petiole $\frac{1}{2}$ in. long.

Flowers $4\frac{1}{2}$ in. wide, delicate crimson pink throughout (including throat and column), column $3\frac{1}{2}$ in. long, bracts 9 or 10, short, green, erect, peduncle 2 in. long.

615 G. R. (Elsa Spalding). Parents: (?) X Rice White.

Vigorous growth, freely branching, erect, light gray bark, green twigs.

Leaves ovate, crenate, smooth, 2-2½ in. wide, 2½-3 in. long, petiole 1 in. long.

Flowers 4 in. wide, crimson pink tinged with orange, tips of petals orange, deep crimson eye, column 2¼ in. long, bracts 6 or 7, erect, peduncle 2½ in. long.

FORMS WITH YELLOW FLOWERS.

71:1 V. S. H. Parents: Hassinger X Lillian Wilder.

Dwarf, freely branching, good foliage, light bark, red twigs.

Leaves ovate, dentate, acuminate, pubescent beneath, 3 in. wide, 4½ in. long, petiole, 1 in. long.

Flower 5½ in. wide, dull Naples-yellow with pinkish tinge, white veins, whitish near eye, large deep crimson eye, column 4 in. long, stigmas pale pink, peduncle 2½ in. long, bracts 8, green, ascending.

205:1 V. S. H. Parents: Ethel L. X Ah Pio.

At two years of age 5 ft. high, irregular ascending branches, bark gray, green on twigs.

Leaves ovate or elliptical serrate, 2-2½ in. wide, 4-5 in. long, light green.

Flower on 2 in. peduncle, involucre bracts narrow, green, 5-7, calyx with narrow tube; petals, column, stigmas and filaments cream-white, anthers yellow, flower expanse 3½-4 in., column 3 in. long. Self seeding. Characters of Ah Pio dominant.

Another plant from same seed pod (205:2) is dwarf, has narrow leaves, narrow yellowish petals, with small crimson eye.

258:1 V. S. H. Parents: Coral X Tantalus White.

Freely branching, dense foliage, gray bark, red on twigs.

Leaves lanceolate or ovate, serrate, acuminate, shiny, raised veins, 1-2 in. wide, 1¾-3¼ in. long, petiole ½ in. long.

Flower 4½ in. wide, dull yellow-pink, with pink veins and deep crimson eye, petals notched, column pale pink, 3½ in. long, peduncle 2 in. long, bracts very short, 7.

399:1 V. S. H. Parents: (?) X Ah Pio.

Growth strong, freely branching, fine foliage, light gray bark, red twigs.

Leaves elliptical or lanceolate, smooth, serrate or entire, acuminate, dark green, 1¾-3½ in. wide, 4¼-6¼ in. long, petiole 1¼-3¼ in.

Flower 5¾ in. wide, like Ah Pio, but larger, and more decidedly yellow, rich crimson eye, column 3 in., light yellow, peduncle 2½ in., bracts 5-7, spreading, green, stigmas, pale yellow spreading. Not self seeder.

411:1 V. S. H. Seedling from Single Orange (flat) Imported.

Dwarf, few branches, sparse foliage, dark gray bark.

Leaves ovate, crenate, smooth, dark green, ½-1 in. wide, ¾-1½ in. long, nearly sessile.

Flower 2 in. wide, funnel shaped, smoky yellow scarlet, short filaments,

pale crimson stigmas, column yellow, $1\frac{1}{2}$ in. long, bracts 6, green peduncle $1\frac{1}{2}$ in. long.

411:2 has orange yellow flower, $2\frac{1}{2}$ in. wide, scarlet stigmas, larger leaves.

411:3 has similar flower, but blotched with orange and scarlet pink, and decidedly recurved stigmas.

423:1 C. M. C. (Alonzo Gartley.) Parents: Common Red X Mrs. Hassinger.

Low growth, erect branches, green twigs, light gray bark.

Leaves ovate, serrate, acuminate, dark green, smooth, $1\frac{1}{2}$ - $2\frac{1}{4}$ in. wide, 2-3 in. long, petiole $1\frac{1}{4}$ in.

Flower $4\frac{3}{4}$ in. wide, orange-scarlet, veins and band near throat crimson pink, deep crimson eye, column pink 3 in. long, peduncle $2\frac{1}{2}$ in., bracts 8, green, erect.

431 J. A. C. Parents: Ah Pio X (Cooperi X Hassinger).

Vigorous growth, dark bark, green twigs, fine foliage, freely branching from base.

Leaves ovate, crenate, smooth, shiny, dark green, $2\frac{1}{2}$ -3 in. wide, $2\frac{1}{4}$ - $3\frac{1}{4}$ in. long, petiole $1\frac{1}{2}$ in.

Flower $5\frac{1}{2}$ in. wide, tip and edge of petals Naples yellow, pale crimson pink toward throat, white throat, column sulphur-yellow 3 in. long, peduncle $2\frac{3}{4}$ in., stigmas orange, bracts 7, green, spreading.

432:1 J. A. C. Parents: Coral X W. M. G. 16.

Upright, sparingly branched, dark gray bark, red twigs, good foliage.

Leaves ovate, serrate, smooth, dark green, $1\frac{1}{2}$ - $1\frac{3}{4}$ in. wide, 2-3 in. long, petiole $1\frac{3}{4}$ in.

Flower 5 in., limb of corolla old gold, pale crimson near throat, deep crimson eye, column pink 3 in. long, peduncle $3\frac{1}{2}$ in. long, bracts 7, brownish, spreading, short.

435:1 J. A. C. Parents: Coral X W. M. G. 14.

Erect, whip growth, fine foliage, light smooth bark, red twigs.

Leaves elliptical or ovate, serrate, smooth, shiny, $2\frac{1}{2}$ - $2\frac{3}{4}$ in. wide 3-4 in. long, petiole $1\frac{3}{4}$ in.

Flower 4 in. wide, uniform Naples yellow, white veins, crimson pink throat, column pink, 3 in. long, peduncle 2 in., bracts 5-8, green, very short.

435:2 has uniform pale crimson pink flower and darker leaves.

437:1 J. A. C. Parents: Coral X W. M. G. 13.

Low growth, spreading branches, dark bark, green twigs.

Leaves lanceolate, elliptical, serrate, acuminate, smooth, $1\frac{1}{2}$ -2 in. wide, $2\frac{3}{4}$ -4 in. long, petiole $\frac{3}{4}$ in.

Flower 4 in. wide, pale Naples yellow with pink tinge, crimson veins and deep crimson eye, column pink, $3\frac{1}{2}$ in. long, peduncle $2\frac{3}{4}$ in., bracts 6, very short, recurved, green.

444:1 C. M. C. Parents: Coral X(?)

Low growth, irregularly branched, smooth, light bark, green twigs.

Leaves lanceolate, serrate, smooth, shiny, dark green, $1\frac{1}{2}$ - $1\frac{3}{4}$ in. wide, $2\frac{1}{2}$ -3 in. long, petiole $1\frac{1}{4}$ in.

Flower 4 in. wide, dull yellow-salmon, pink veins, crimson eye, column pink 3 in. long, peduncle 2 in., bracts 5-7, very short, spreading.

481 (Ah Pio, *Hibiscus luteolus-solitarius*.) Introduced.

Freely branching vigorous grower, bark gray, reddish brown on twigs.

Leaves lanceolate to ovate, entire or serrate on terminal third of margins, smooth, light green, 1-2 in. wide, 2-4½ in. long, petiole 1-2½ in.

Flower expanding 4 in., flat, pale cream yellow, small crimson eye, stigmas spreading pale yellow, column 2½ in. long, cream color, peduncle 1½ in. long, involucre bracts 8 or 9, green, crosses freely. Seeds heavily.

482 (Annie Bishop.) Introduced.

Dwarf, sparse foliage and branches, dark bark.

Leaves ovate, crenate, smooth, thick, sometimes truncate, 1¼-2¼ in. wide, 1½-2¾ in. long, petiole 1 in.

Flower 3¾ in. wide, orange salmon, scarlet veins, yellow throat, narrow petals, column yellow, 2¼ in. long, peduncle 1½ in., bracts 6, green, erect. Freely seeds and crosses.

483 (*H. brackenridgei*). Native.

Sometimes attaining a height of 20 ft., spreading branches, bark light gray, twigs green with very short reddish spines.

Leaves palmately 3-7 lobed, pubescent, dentate, cordate, 3-5½ in. each way, petiole 2-5 in. long.

Flower 4¾ in. wide, pure sulphur yellow throughout, small crimson spot on each petal at the throat, column 2½ in., curved upward, cylindrical, not tapering, stigmas yellow, closely appressed, anthers on very short filaments mostly on upper side of column, calyx lobes erect, thick, with numerous red, hispid glands, bracts 8 or 9, long, spreading, stiff. Seeds freely, but does not cross.

484 (Double Yellow, *Hibiscus lutea-pleno*.) Introduced.

Tall, irregular growth, drooping branches, light gray, green twigs, leaves soon deciduous except on tips of branches.

Leaves lanceolate or ovate, serrate, smooth, dark green, acuminate, 1¼-2 in. wide, 1½-3¾ in. long, petiole ½ in.

Flower double, 4½ in. wide, Naples yellow, petal claws crimson, peduncle 2 in., bracts 6 or 7, green, spreading. Does not seed or cross.

Rarely the flower is half yellow and half salmon pink, indicating close relationship with the Double Salmon.

485 G. P. W. (Gertrude Ivers). Sport grown from seed capsule introduced by G. P. Wilder, from A. S. Archer.

Slow growth, upright, freely branching, dark gray bark, green on twigs.

Leaves ovate, thick, serrate, light green, raised veins, 1½-2¼ in. wide, 2¼-3½ in. long, petiole ½ in.

Flower 5 in. wide, sulphur yellow-orange, scarlet tinge in veins and near tip of petals, throat rich crimson, column pale yellow, 3 in. long, peduncle 2¾ in., bracts 7 or 8, green, upright. Seldom self seeds; crosses freely.

486 (Jamaica). Introduced by Mrs. C. L. Wight.

Vigorous growth, freely branching, dark gray bark, brownish on twigs.

Leaves ovate dentate, dark green, slightly pubescent, $1\frac{3}{4}$ - $3\frac{1}{4}$ in. wide, $2\frac{1}{2}$ - $4\frac{1}{2}$ in. long, petiole $\frac{3}{4}$ in.

Flower $4\frac{1}{2}$ in. wide, yellow-orange, with scarlet tinge, very pale near the dark crimson eye, column pale yellow 3 in. long, peduncle 2 in. long, stigmas pale scarlet, bracts 6 or 7, green, appressed. Used as male parent. Not self seeder.

487 G. P. W. (Jane Wilder). Parents: Ally Hatch X Jamaica.

Freely branching, good foliage, dark bark, reddish brown on twigs.

Leaves ovate or 3-lobed, dentate, smooth, shiny, light green, 2-3 in. wide, $4\frac{1}{2}$ - $5\frac{1}{4}$ in. long, petiole $\frac{3}{4}$ in. long.

Flower $4\frac{1}{4}$ in. wide, dull yellow orange, with crimson veins and dark eye, column pale yellow, $3\frac{1}{4}$ in. long, peduncle $4\frac{1}{2}$ in. long, bracts 5-7, wide, appressed, green. Self seeder. Crosses freely.

488 (Judd Yellow, "Pacifica.") Introduced by S. M. Damon.

Tall, sparsely branching, light gray bark, green twigs, good foliage.

Leaves ovate, serrate, smooth, dark green, acuminate, $1\frac{1}{4}$ - $1\frac{1}{2}$ in. wide, $2\frac{1}{4}$ - $2\frac{3}{4}$ in. long, petiole $\frac{1}{2}$ in.

Flower 3 in. wide, pale cream white, white near throat, dark crimson eye, column almost white, $2\frac{1}{4}$ in. long, stigmas small, yellow, peduncle 3 in., bracts 5-7, short, green, appressed. Pollen sterile. Not self seeder.

489 G. P. W. (Lily Gay). Sport grown from seed by G. P. Wilder from A. S. Archer.

Dwarfish, dark green bark, green twigs, foliage sparse except on twigs.

Leaves ovate, serrate, shiny, dark green, smooth, $1\frac{3}{4}$ - $2\frac{1}{2}$ in. wide, $2\frac{1}{2}$ - $3\frac{1}{2}$ in. long, petiole $\frac{3}{4}$ in. long.

Flower 5 in. wide, orange yellow with scarlet tinge, deep crimson eye, column yellow, $2\frac{3}{4}$ in. long, stigmas spreading, peduncle $1\frac{1}{2}$ in., bracts 6 or 8, green, erect. Seeds and crosses freely.

490 G. P. W. (Molly Wilder). Parents: Common Red X Single Cerise.

Very strong growth, good foliage, freely branching dark gray bark.

Leaves ovate, dentate, smooth, shiny, dark green, thick, 2 - $3\frac{3}{4}$ in. wide, $2\frac{1}{2}$ - $4\frac{3}{4}$ in. long, petiole $\frac{3}{4}$ in.

Flower 7 in. wide, uniform crimson yellow-scarlet, with scarlet eye, petals recurved, much yellow on back, stigmas crimson, spreading, column $3\frac{1}{4}$ in., peduncle $2\frac{3}{4}$ in., bracts 5-7, green, appressed. Seeds abundantly, crosses readily.

491 G. P. W. (Nora Swanzy). Parents: Jamaica X Native White.

Strong growth, dense foliage, dark bark, green on twigs, prolific bloomer.

Leaves ovate, dentate, dark green, smooth, $\frac{3}{4}$ - $3\frac{1}{4}$ in. wide, $1\frac{1}{4}$ - $4\frac{1}{4}$ in. long, petiole $\frac{1}{2}$ - $1\frac{1}{4}$ in.

Flower $4\frac{1}{4}$ in. wide, smoky yellow, white veins and crimson eye, stigmas spreading, crimson column 3 in., peduncle 2 in., bracts 5-7, green appressed. Abundant seeding; crosses freely.

492 (Semidouble Salmon Fijian). Introduced by J. D. McNerny.

Dwarf, foliage sparse except on twigs, bark smooth gray, greenish brown twigs.

Leaves ovate, serrate, acuminate, smooth, shiny, $1\frac{1}{2}$ -2 in. wide, $1\frac{3}{4}$ -2 $\frac{1}{4}$ in. long, petiole $\frac{1}{2}$ long.

Flower $4\frac{1}{2}$ in. wide, delicate scarlet-orange, single at base, (with five regular petals and a dark crimson eye) a tuft of small petals at the end of the modified column, peduncle $2\frac{1}{2}$ in. long, bracts 6, green, spreading. Self seeds and crosses readily.

493 G. P. W. Parents: Ally Hatch X Jamaica.

From first cross two bore yellow, one orange, and four red flowers; good foliage and growth, dark bark, brown twigs.

493:1 Princess Kawanakoa.

Leaves ovate acuminate, coarsely dentate, smooth, dark green, 3 in. wide, 4 in. long, petiole $\frac{3}{4}$ in.

Flower 5 in. wide, yellow orange, whitish near base, throat dark crimson, column nearly white, $3\frac{1}{4}$ in. long, peduncle $4\frac{1}{2}$ in., bracts 5-8, green, upright, stigmas, appressed, scarlet.

493:4 has orange, narrow petals, paler throat and ovate or 3-lobed leaves.

493:5 has scarlet flower, whitish on sides of claws front and back, dark crimson eye.

494:3 G. P. W. Parents: Gertrude Ivers X Kauai White.

Vigorous, erect, whip-growth, ascending branches, stem unbranched below, bark dark gray, brown on twigs, good foliage.

Leaves, elliptical, or broadly ovate, dentate, pubescent, raised veins which are brown on lower side, $1\frac{3}{4}$ -2 $\frac{3}{4}$ in. wide, $3\frac{1}{2}$ -5 in. long, petiole 1-2 in. long.

Flower $5\frac{1}{2}$ in. wide, pale cream-buff with crimson veins and eye, stigmas appressed, deep scarlet, column crimson, yellow at tip, $3\frac{1}{2}$ in. long peduncle 3 in. long, bracts 5-7, long, brownish. Self seeder. Flower persists two days.

494:2 is more decidedly erect, larger leaves. Not self seeder.

515 (Semidouble Yellow Fijian). Introduced by J. D. McNerny.

Slow growth, profusely branched, light smooth bark, green twigs, sparse foliage.

Leaves lanceolate or ovate, serrate, smooth, light green, 1 in. wide, $1\frac{1}{4}$ in. long, nearly sessile.

Flower $2\frac{1}{2}$ in. wide, semidouble, Naples yellow throughout, whitish in throat, peduncle $1\frac{1}{4}$ in. long, bracts 5 or 6, green recurved.

528:1 G. R. (Olga). Parents: Ah Pio X Hassinger.

Moderate growth, freely branching, dark bark, green twigs, good foliage.

Leaves ovate, serrate, acuminate, slightly pubescent beneath, $1\frac{3}{4}$ -2 in. wide, $2\frac{1}{4}$ - $3\frac{1}{2}$ in. long, petiole $\frac{3}{4}$ in. long.

Flower $5\frac{1}{2}$ in. wide, nearly white, cream yellow on tip of petals, large deep crimson eye, column cream yellow, $4\frac{1}{2}$ in. long, peduncle $1\frac{1}{2}$ in. stigmas yellow, bracts 7 or 8, green, spreading. Not self seeder.



Hibiscus, variety Jamaica.



Hibiscus, variety Hibiscus Brackenridgei.



Hibiscus, variety Gertrude Ivers.



Mahil Quirus Wilcox.
1913.

Hibiscus, variety 411: 1.

531 (*H. tiliaceus*, Hau). Native.

Bush, tree or irregularly decumbent shrub.

Leaves orbicular, cordate at base, shortly acuminate, entire, gray, pubescent beneath, 4-7 in. both ways, petiole 3-6 in. long.

Flower $3\frac{1}{2}$ in. wide, lemon yellow, deep carmine eye, column yellow, $1\frac{1}{4}$ in. long, filaments short, stigmas small carmine, bracts 8-10, united at base into a cup, reddish. Does not cross.

536 A. G. 2. Parents: Annie Bishop X Hassinger.

Moderate growth, dark bark, green twigs, good foliage.

Leaves elliptical or ovate, entire or crenate, smooth, $2-2\frac{1}{2}$ in. wide, $3-3\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower $5\frac{1}{2}$ in. wide, orange-salmon, deep crimson eye, column yellow, $3\frac{1}{2}$ in. long, peduncle 2 in. long, bracts 6, green, erect.

Other plants of same cross have more crimson tinge, or pure crimson. Not self seeder.

564 C. M. C. Parents: Knudsen White X Single Cerise.

Vigorous growth, light bark, brownish twigs, excellent foliage.

Leaves ovate, dentate, thin, pubescent, $3-3\frac{1}{2}$ in. wide, $5-5\frac{1}{2}$ in. long, petiole 2 in. long.

Flower 5 in. wide, outer third of petals Naples yellow-buff, inner two-thirds pale crimson pink, becoming darker toward throat, column $2\frac{1}{2}$ in. long, peduncle 4 in., bracts 8, narrow, bronze, spreading.

616 G. R. (Cotta Meier). Parents: Haena Red X Rice White.

Moderate growth, good foliage, abundant branching.

Leaves lanceolate-ovate, indistinctly toothed, slightly pubescent below, $1\frac{1}{2}$ in. wide, $3\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in. long.

Flowers $3\frac{1}{2}$ in. wide, uniform pale lemon yellow, white in throat, column 2 in. long, pale yellow, stigmas crimson pink, bracts 9, green, narrow, erect, peduncle $\frac{1}{2}$ in. long.

FORMS WITH RED FLOWERS.**3:1 V. S. H. Parents: Pauahi Bishop X Carnation.**

Dwarfish, sparse foliage, irregular branching, dark gray bark.

Leaves lanceolate or ovate, serrate, smooth, $1\frac{1}{2}-2\frac{1}{4}$ in., $2\frac{3}{4}-3\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower double, 5 in. wide, petals crimson scarlet with darker claws, peduncle $2\frac{1}{2}$ in. long bracts 6, green, ascending. Not self seeder.

3:2 has excellent foliage, larger growth, better branching, much larger leaves, and more fully double flower.

4:1 V. S. H. Parents: Pauahi Bishop X Carnation.

Long, spreading, irregular branches, dark gray bark, reddish twigs.

Leaves ovate, serrate, smooth, shiny, $1\frac{1}{4}-2$ in. wide, $1\frac{3}{4}-3$ in. long, petiole $\frac{1}{2}$ in. long.

Flower $4\frac{1}{2}$ in., scarlet-crimson, dark scarlet eye, column $3\frac{1}{2}$ in., peduncle $1\frac{3}{4}$ in., bracts 6, wide, green, erect. Not self seeder.

18:8 V. S. H. Parents: Single Orange (Upright) X Carnation.

Strong growth, profuse branching, pendulous lateral twigs, bark dark gray.

Leaves ovate, serrate, smooth, dark green, $1\frac{1}{4}$ - $2\frac{3}{4}$ in. wide, 2-4 in. long, petiole 1 in.

Flower $4\frac{3}{4}$ in. wide, rich scarlet, slightly darker in throat, column upward-curved, $3\frac{1}{2}$ in. long, stigmas deep crimson, peduncle $2\frac{3}{4}$ in., bracts 5-7, green. Not self seeder.

20:4 V. S. H. Parents: Single Orange (flat) X Carnation.

Good growth, erect main branches, drooping lateral branches, bark dark gray.

Leaves elliptical or ovate, serrate near tip, smooth, $\frac{3}{4}$ - $1\frac{1}{4}$ in. wide, $1\frac{3}{4}$ -3 in. long, petiole $\frac{1}{4}$ in. long.

Flower $4\frac{1}{2}$ in. wide, rich orange-scarlet, deeper scarlet eye, column curved upward, $3\frac{1}{4}$ in. long, stigmas spreading, crimson, peduncle $2\frac{1}{2}$ in. long, bracts 5, green, appressed. Self seeder.

20:5 V. S. H. Parents: Single Orange (flat) X Carnation.

Spreading habit, freely branching, dense foliage, dark gray bark, green on twigs.

Leaves ovate, dentate one-half of length, shiny, dark green, $1\frac{1}{2}$ -2 in. wide, 2-3 in. long petiole $\frac{1}{2}$ in. long.

Flower double, 5 in. wide, petals rich orange scarlet, with darker claws, peduncle 3 in. long, bracts 5, green, sepal tips recurved. Self seeder.

20:2 has semidouble flower, of same color and 4 in. wide. Self seeder.

23:1 V. S. H. Parents: Common Single Red X Carnation.

Profuse irregular branching, dark gray bark, brown twigs, dense foliage.

Leaves ovate, dentate, plaited, shiny, $1\frac{1}{2}$ - $2\frac{3}{4}$ in. wide, $1\frac{3}{4}$ - $3\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower $4\frac{1}{4}$ in. wide, rich scarlet-vermilion, column $2\frac{3}{4}$ in. long, anthers extending beyond the closely appressed stigmas, peduncle $1\frac{1}{2}$ in. long, bracts 6, green, upright. Not self seeding.

26:3 V. S. H. Parents: Single Pink (Experiment Station) X Carnation.

Woody, low-branching, vigorous, bark brown-gray, reddish on twigs.

Leaves smooth, ovate, dentate, dark green, crowded on branches, $1\frac{1}{2}$ in. wide, $2\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower full double, $4\frac{1}{2}$ -5 in. wide, on first blooming, second flower from seed pod 3 in. wide, uniform dark crimson-vermilion, peduncle $1\frac{3}{4}$ in. long. From green seed pod of first bloom a second smaller flower develops, the valves of the seed pod appearing like an inner calyx. Involucre bracts appressed, wide, long, 6 or 7.

51:5 V. S. H. Parents: Coral X Mrs. Hassinger.

Profusely branching from base with densely crowded small leaves, bark brownish gray.

Leaves ovate, lanceolate, serrate, long pointed, dark dull green, $\frac{1}{4}$ - $1\frac{1}{2}$ in. wide, $\frac{3}{4}$ - $2\frac{3}{4}$ in. long, almost sessile.

Flower $4\frac{1}{2}$ in. wide, uniform crimson-scarlet, column same color, 4 in. long, stigmas moderately spreading, deep crimson, peduncle 2 in. long, involucre bracts $\frac{1}{2}$ in. long, 6-7, brown. Characters of male parent dominant. Not self seeding.

53:1 V. S. H. Parents: Coral X Mrs. Hassinger.

Profuse spreading branching from base, dense foliage, light gray bark, greenish twigs.

Leaves lanceolate or ovate, serrate, shiny, smooth, $1\frac{1}{2}$ - $1\frac{3}{4}$ in. wide, $1\frac{3}{4}$ - $2\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in.

Flower 5 in., scarlet crimson, lighter veins, deep crimson eye, petals recurved, column 3 in., peduncle $1\frac{1}{4}$ in., bracts 5 or 6, short, brownish. Not self seeding.

61:12 V. S. H. Parents: Common Single Red X Mrs. Hassinger.

Rapid growth, erect, sparse horizontal branches, dark gray bark, green twigs.

Leaves ovate or 3-lobed, cordate, dentate, slightly pubescent, shiny, $1\frac{1}{2}$ -3 in. wide, $2\frac{3}{4}$ in. long, petiole $\frac{1}{2}$ in.

Flower 4 in. wide, dark crimson vermillion, lighter veins, black-crimson eye, column $2\frac{3}{4}$ in. long, crimson, peduncle $2\frac{1}{2}$ in., bracts 5 or 6, wide, green. Not self seeder.

66:1 V. S. H. Parents: Single Orange (Upright) X 02 Sec. 2.

Strong, erect growth, dense foliage, profuse branching, dark gray bark, brownish twigs.

Leaves ovate, serrate, acuminate, smooth, shiny, dark green, $1\frac{1}{2}$ - $2\frac{1}{2}$ in. wide, $2\frac{1}{2}$ - $4\frac{1}{2}$ in. long, petiole 1 in.

Flower 6 in., scarlet-orange, paler veins, crimson throat, column whitish, $4\frac{1}{2}$ in. long, peduncle $1\frac{1}{2}$ in., bracts 5 or 6, erect. Not self seeder.

83:3 V. S. H. Parents: Mrs. Hassinger X Single Cerise.

Tall, erect, heavy wood dense foliage, dark bark, reddish twigs.

Leaves elliptical or obovate, entire or irregularly serrate, thick, smooth, $1\frac{1}{2}$ - $2\frac{1}{4}$ in. wide, $2\frac{1}{4}$ - $4\frac{1}{2}$ in. long, petiole 1 in.

Flower 6 in., uniform crimson vermillion, darker in throat, stigmas deep crimson, column $3\frac{1}{2}$ in., peduncle $1\frac{1}{2}$ in., bracts 5 or 6, short, erect. Not self seeder.

83:1 has delicate crimson pink flowers, with deep crimson-vermillion eye.

92:9 V. S. H. Parents: Hakalau Red X Semidouble Salmon.

Tall, vigorous, extensive branching, dark gray bark, green on twigs.

Leaves ovate, dentate, acuminate, shiny, dark green, $2\frac{1}{2}$ in. wide, $3\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower 4 in. wide, uniform scarlet, no eye, column scarlet, $3\frac{1}{4}$ in. long, peduncle 2 in. long, 7 bracts, green, appressed, stigmas spreading, crimson. Not self seeding.

93:1 V. S. H. Parents: Large Single Red X Semidouble Fijian.

Profusely branching from base, 10 ft. high at two years of age, bark rough dark gray, light brown on twigs.

Leaves ovate, dark green, shiny, dentate, raised veins, $1\frac{1}{2}$ -2 in. wide, $2\frac{1}{2}$ -3 in. long, petiole lin. long.

Flowers dark scarlet with crimson eye, $4\frac{1}{4}$ in. wide, column scarlet, $3\frac{1}{2}$ in. long, stigmas spreading crimson, peduncle 3 in. long. Seldom seeds.

136:8 V. S. H. Parents: 1E X Carnation.

Tall, whip growth, sparse lateral branching, good foliage, bark dark gray, brown on twigs.

Leaves ovate or cordate, dentate, acuminate, dark green, $1\frac{1}{4}$ - $2\frac{1}{2}$ in. wide, $1\frac{3}{4}$ - $3\frac{1}{2}$ in. long, petiole $\frac{3}{4}$ in. long.

Flower double, $4\frac{3}{4}$ in. wide, deep crimson-vermilion, stigmas crimson, peduncle $3\frac{1}{2}$ in. long, bracts 5 or 6, appressed, green. Not self seeding.

136:6 has semidouble, or rarely single flowers, 6 in. wide, pure deep crimson, column 4 in. long, with one or two attached petals.

136:4 has full double flowers, deep crimson-scarlet, 5 in. wide, and larger leaves.

177:15 V. S. H. Parents: Oahu Red X Carnation.

Strong growth, dark bark, green on twigs.

Leaves ovate, serrate, acuminate, smooth, light green, $2\frac{3}{4}$ -3 in. wide, $4\frac{1}{2}$ in. long, petiole $\frac{3}{4}$ in. long.

Flowers $3\frac{1}{2}$ in. wide, rich uniform scarlet crimson throughout, funnel-shape, stigmas spreading, scarlet, column 3 in., peduncle 3 in., bracts 6, green, appressed. Not self seeder.

198:1 V. S. H. Parents: Oahu Red X Superba.

Strong growth, light bark, red twigs, fine foliage.

Leaves ovate, dentate, shiny, smooth, $2\frac{3}{2}$ in. wide, $3\frac{1}{2}$ -6 in. long, petiole $1\frac{1}{2}$ in.

Flower $5\frac{1}{2}$ in. wide, deep scarlet-vermilion, deep crimson eye, column declined, scarlet, $4\frac{1}{4}$ in. long, peduncle $2\frac{1}{4}$ in., bracts long, green, 4-5. Not self seeder.

201:1 V. S. H. Parents: 180:12 X Ah Pio.

Good growth, profuse branching, dense foliage, gray bark, reddish green on twigs.

Leaves ovate, dentate, dull green, slightly pubescent, $2\frac{3}{4}$ in. wide, $2\frac{3}{4}$ -5 in. long, petiole $\frac{1}{2}$ -2 in. long.

Flower 7 in. wide, uniform crimson-scarlet with white veins and dark crimson eye, stigmas orange-red, column pale yellow, 4 in. long, peduncle 2 in. long, bracts 7, green, appressed. Not self seeder.

202:1 V. S. H. Parents: Pauahi Bishop X Superba.

Slow growth, dwarfish, free branching, dark gray bark, green on twigs.

Leaves ovate, dentate, acuminate, pubescent, $1\frac{3}{4}$ -3 in. wide, $2\frac{1}{2}$ - $3\frac{3}{4}$ in. long, petiole $\frac{3}{4}$ in. long.

Flower 6 in. wide, medium crimson-scarlet, paler near throat, with dark throat, column pale crimson, 4 in. long, peduncle $3\frac{1}{2}$ in. long, bracts 5 or 6, green, appressed. Self seeding.

202:2 has larger leaves, denser foliage, brownish twigs, and flower 7 in. wide, pure scarlet with deeper eye, and column 5 in. long.

202:3 has flower $6\frac{1}{4}$ in. wide, crepe texture, crimson pink with dark carmine eye, column 4 in. long.

202:4 V. S. H. Parents: Pauahi Bishop X Superba.

Spreading, decumbent, good foliage, light gray smooth bark, brown twigs.

Leaves ovate, dentate, shiny, dark green, smooth, $1\frac{1}{4}$ -2 in. wide, 2-3 in. long, petiole $\frac{1}{2}$ in.

Flower 5 in., deep scarlet, whitish mottling near throat, rich crimson eye, column $3\frac{3}{4}$ in. long, peduncle $2\frac{1}{2}$ in., bracts 5 or 6, green, spreading. Not self seeder.

203:1 V. S. H. Parents: Pauahi Bishop X Ah Pio.

Leaves ovate, crenate, smooth, thick, light green, $1\frac{1}{4}$ - $2\frac{1}{4}$ in. wide, $1\frac{1}{2}$ - $2\frac{3}{4}$ in. long, petiole $\frac{3}{4}$ in.

Flower 4 in., crimson-scarlet-orange, white veins, small deep crimson eye, column yellow, $2\frac{3}{4}$ in. long peduncle $1\frac{3}{4}$ in. long, bracts 5-7, green spreading stigmas orange-scarlet. Self seeder.

206:1 V. S. H. Parents: Jamaica X Carnation.

Dwarfish, closely branched, dense foliage, light gray bark, red twigs.

Leaves 3-lobed, lobes incised and dentate, smooth, shiny, light green, $2\text{-}3\frac{1}{2}$ in. wide, $2\frac{1}{2}$ - $4\frac{1}{4}$ in. long petiole $1\frac{1}{4}$ in. long.

Flowers 4 in. wide, uniform rich scarlet-crimson, dark crimson eye, column 3 in. long, peduncle $1\frac{3}{4}$ -5 in., bracts green, erect, broad.

226:4 V. S. H. Parents: Single Red Clerghorn X Superba.

Vigorous, upright growth, good foliage, bark gray, reddish on twigs.

Leaves ovate, dentate, acuminate, dark green, $2\text{-}3\frac{1}{2}$ in. wide, $3\text{-}4\frac{3}{4}$ in. long, petiole $1\frac{1}{4}$ in. long.

Flower 5 in. wide, scarlet, paler near throat, with crimson eye, crepe like, column pale, declined, $3\frac{1}{2}$ in. long, stigmas appressed, scarlet, peduncle $3\frac{3}{4}$ in. long, bracts 7, spreading, green. Free seeding.

235:1 V. S. H. Parents: 177:15 X Single Orange (Upright).

Irregular spreading branches from base, bark dark gray or brownish except on twigs.

Leaves smooth, thick, shiny, dark green, ovate, crenate-serrate, $1\frac{1}{4}$ - $2\frac{1}{2}$ in. wide, $2\frac{3}{4}$ -4 in. long, densely grouped on short petiole.

Flower pure scarlet, with no eye, stigmas spreading, crimson, flower peduncle 3 in. long, column $2\frac{1}{2}$ in. long, flower funnel shaped, spreading $2\frac{3}{4}$ in. Flower has shape of Single Orange, and color of Oahu Red (one of the grand-parents). Not self seeding.

251:3 V. S. H. Parents: Cleghorn Red X Mrs. Hassinger.

At two years of age 6 ft., erect, single stem ascending branches at base, bark gray, reddish brown on twigs.

Leaves broadly ovate, cordate, lower ones 3-lobed, dentate margins, 2-4 in. wide, $1\frac{1}{2}$ - $3\frac{1}{2}$ in. long. raised veins.

Flower on axillary peduncles $3\frac{1}{2}$ in. long, expanse 5 in., petals column and stigmas deep crimson-vermilion, darker crimson eye, 6 or 7, narrow, green, involucrel bracts, anthers near end of column, yellow. Flower opens early morning. Inherits large eye and lobed leaves of Hassinger. Flower color blend of two parents. Not self seeding.

252:1 V. S. H. Parents: Fair Harvard X Giffard 3.

Dwarf, sparingly branched, good foliage, light gray bark, green twigs. Leaves ovate, serrate, pubescent, dark green, $1\frac{1}{4}$ - $2\frac{1}{4}$ in. wide, $2\frac{3}{4}$ in. long, petiole $\frac{3}{4}$ in.

Flower $3\frac{1}{2}$ in. wide, crimson-scarlet, paler veins, deep crimson eye, column crimson $2\frac{1}{4}$ in., peduncle $1\frac{1}{2}$ in., bracts 6 or 7, short, erect.

297:5 V. S. H. Parents: Coral X Pauahi Bishop.

Strong growth, dense foliage, erect branches, brown bark, green on twigs. Leaves ovate or cordate, pointed or truncate, entire, smooth, $2\frac{2}{4}$ in. wide, $2\frac{1}{4}$ - $3\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower $5\frac{1}{4}$ in. wide, uniform orange-scarlet, darker at throat, stigmas far exserted, crimson, column $3\frac{1}{2}$ in. long, peduncle 2 in. long, bracts 6, narrow, green. Not self seeding.

397:1 V. S. H. Parents: Jamaica X (?)

Strong growth, good foliage, woody, rough gray bark, reddish on twigs. Leaves ovate, dentate, acuminate, slightly pubescent, dark green $2\frac{1}{4}$ in. wide, $2\frac{3}{4}$ - $4\frac{1}{4}$ in. long, petiole 1 in.

Flower $7\frac{1}{2}$ in. wide, rich crimson carmine, whitish mottling near claws of the petals, dark eye, much like Pauahi Bishop except wider petals, column $4\frac{3}{4}$ in., peduncle 3 in., bracts green, 5 or 6, appressed. Not self seeder.

400:1 V. S. H. Parents: (?) X Superba.

Strong grower, branching from base, smooth dark gray bark, brown-black twigs, excellent foliage.

Leaves ovate, dentate, smooth, dark green, $2\frac{3}{4}$ in. wide, 3-4 in. long, petiole $\frac{1}{4}$ in.

Flower $5\frac{3}{4}$ in. wide, deep crimson-scarlet, darker eye, paler column 4 in. long, peduncle $4\frac{1}{2}$ in., bracts 6, long, green, stigmas deep crimson-vermillion, spreading. Not self seeder.

400:2 has slenderer more upright branches, red brown twigs and flowers of a richer crimson-scarlet, at height of 6 feet has 40 flowers in one day.

406:1 V. S. H. Parentage unknown.

Strong growth, fine foliage, brownish bark, green twigs, profuse branching.

Leaves lanceolate or ovate, serrate, pubescent, $1\frac{3}{4}$ - $2\frac{1}{2}$ in. wide, $3\frac{1}{4}$ - $4\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in.

Flower 6 in. wide, deep rich scarlet with black-scarlet eye, column paler, 4 in. long, peduncle 4 in., bracts 5-7, green, ascending. Not self seeding.

407:1 V. S. H. Parentage unknown.

Very strong, woody growth, branching from base, dark bark, green twigs, fine foliage.

Leaves lanceolate or ovate, finely serrate, dark green, acuminate, pubescent, $1\frac{3}{4}$ - $2\frac{3}{4}$ in. wide, $2\frac{3}{4}$ - $4\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in.

Flower $5\frac{1}{2}$ in. wide, pure scarlet with slightly darker throat and stigmas, column $3\frac{3}{4}$ in., peduncle 3 in., bracts 5 or 6, erect, green. Not self seeder.

408:1 V. S. H. Parents: Copper Leaf X Cooperi.

Low, densely branched, fine foliage, light gray bark, dark brown-red twigs.

Leaves lanceolate or ovate, serrate, smooth, dark green, $1\frac{1}{2}$ - $2\frac{1}{4}$ in. wide, $3\frac{1}{4}$ -5 in. long, petiole $1\frac{1}{4}$ in.

Flower 6 in., pale crimson-scarlet, wide whitish ring near throat, deep crimson eye, column $3\frac{3}{4}$ in., peduncle 3 in., bracts 6-8, spreading, long, green, stigmas spreading, crimson. Self seeding.

409:1 V. S. H. Parentage unknown.

Low growth, freely branching, dark gray bark, green twigs.

Leaves broadly ovate, serrate, acuminate, pubescent, $1\frac{3}{4}$ - $2\frac{3}{4}$ in. wide, $2\frac{1}{2}$ - $4\frac{1}{4}$ in. long, petiole $\frac{1}{2}$ in.

Flower $4\frac{1}{2}$ in. wide, pure scarlet with lighter veins and throat, column pale, 3 in. long, peduncle 3 in., bracts 5 or 6, green appressed. Not self seeder.

412:1 V. S. H. (Velvet red). Parents: Coral X Carnation.

Profuse, erect, lateral and drooping branches, bark gray, green on twigs, smooth throughout.

Leaves ovate, dentate, shiny, dark green, raised veins, on short petioles, 2 - $2\frac{1}{2}$ in. wide, 3 - $3\frac{1}{2}$ in. long, pointed.

Flower on drooping $3\frac{1}{2}$ -4 in. peduncles, expanse 3 - $4\frac{1}{2}$ in., involucre bracts 6, short, petals rich carmine-red, scalloped, slightly folded, recurved when fully open; column $2\frac{1}{2}$ - $3\frac{1}{4}$ in. long, paler than petals. Does not seed. Will not cross. Has habit of growth of Carnation and flower and foliage of Coral.

412:2 V. S. H. Parents: Coral X Carnation.

Low, profuse branching, good foliage, dark gray bark, green twigs.

Leaves ovate, dentate, smooth, dark green, shiny, $1\frac{1}{4}$ -2 in. wide, 2 - $2\frac{3}{4}$ in. long, petiole $\frac{1}{2}$ in.

Flower $3\frac{1}{2}$ in. double, uniform rich scarlet crimson with darker petal claws, peduncle $2\frac{3}{4}$ in., bracts 6 or 7, short, green. Neither seeds nor crosses.

412:3 has smaller, darker flowers (blackish red) which do not fully open.

413:1 V. S. H. (Brick Red). Parents: Coral X Ah Pio.

Erect, freely branching, fine foliage, dark gray bark, red twigs.

Leaves lanceolate or ovate, serrate, smooth, shiny, dark green, $1\frac{1}{4}$ -2 in. wide, 2-4 in. long, petiole $1\frac{1}{2}$ in.

Flower 4 in. wide, uniform crimson-scarlet, petals plaited and notched, small dark crimson eye, column crimson pink, slender, pendulous, $3\frac{1}{2}$ in. long, peduncle 3 in., bracts 6-8, short, green. Neither seeds nor crosses.

415:1 V. S. H. Parents: (?) X Carnation.

Low growth, profuse branching, excellent foliage, dark gray bark, green twigs.

Leaves ovate, dentate, shiny, dark green, smooth, $2\frac{1}{4}$ - $3\frac{1}{2}$ in. wide, $2\frac{3}{4}$ - $4\frac{3}{4}$ in. long, petiole $\frac{1}{2}$ in.

Flower full double, $4\frac{1}{2}$ in. wide, most regular double, rich scarlet crimson, peduncle 2 in., bracts short, green, 5. Not self seeding.

422:1 V. S. H. Parents: Common Red X Hassinger.

Strong growth, dark gray bark, red twigs, good foliage.

Leaves ovate, serrate or crenate, smooth, dark green, $1\frac{1}{2}$ - $2\frac{1}{2}$ in. wide, $2\frac{1}{2}$ - $3\frac{1}{2}$ in. long, petiole $\frac{3}{4}$ in. long.

Flower $4\frac{1}{2}$ in. wide, rich scarlet-vermilion, black-crimson eye, column slender, declined, 4 in. long, peduncle 1 in. long, bracts 6, short, green. Not self seeder.

430:1 Introduced.

Strong growth, profusely branched from base, dark bark, pendant twigs.

Leaves lanceolate, or ovate, smooth, dentate, $1\frac{1}{4}$ -2 in. wide, 2- $2\frac{3}{4}$ in. long, petiole $\frac{1}{2}$ in.

Flower $7\frac{1}{4}$ in. wide, rich medium crimson, dark crimson eye, column 4 in., crimson pink, peduncle 2 in., bracts 6 or 7, long, green, upright. Not self seeding; crosses sometimes.

436:1 J. A. C. Parents: Coral X Copper Leaf.

Very tall, whip growth, light smooth bark, red twigs.

Leaves lanceolate or ovate, dentate, acuminate, smooth, bronze green, $1\frac{1}{2}$ - $2\frac{1}{4}$ in. wide, $2\frac{3}{4}$ -4 in. long, petiole $1\frac{1}{4}$ in.

Flower 4 in. wide, uniform deep scarlet, deeper in throat, column pendulous, 3 in. long, peduncle 2 in., bracts 6 or 7, spreading, brownish.

443:1 C. M. C. Parents: Coral X Oahu Red.

Low growth, light gray bark, green twigs, freely branching.

Leaves ovate, serrate, acuminate, smooth, shiny, $1\frac{3}{4}$ - $2\frac{3}{4}$ in. wide, $2\frac{1}{2}$ - $3\frac{3}{4}$ in. long, petiole $1\frac{1}{2}$ in.

Flower $4\frac{1}{2}$ in. uniform crimson-scarlet throughout, petals notched, column slender, $3\frac{1}{2}$ in. long, peduncle 4 in., bracts 6, very short, recurved.

495 (American Flag). Introduced.

Straggling bush, moderate growth, smooth light bark, sparse foliage.

Leaves lanceolate, serrate, acuminate, smooth light green, $\frac{1}{2}$ in. wide, $1\frac{1}{2}$ in. long, nearly sessile.

Flower $2\frac{1}{2}$ in. wide, double, narrow twisted crimson petals, edged with white or yellow, peduncle $1\frac{1}{2}$ in., bracts 6, short, green. Neither seeds nor crosses.

496 (Carnation). Introduced.

Low, irregular branching, dark gray bark, sparse foliage.

Leaves lanceolate or ovate, finely serrate, smooth, light green, 1 in. wide, $1\frac{1}{2}$ -2 in. long, nearly sessile.

Flower double, 3 in. wide, uniform crimson-carmine, bracts 6, broad, short, green, peduncle $1\frac{1}{2}$ in. long. Not self seeder, but is used either as male or female parent.

497 C. M. C. (Carolene). Parents: Coral X Common Double Red.

Very strong growth, numerous spreading branches, smooth, light gray bark, brownish on twigs.

Leaves broadly ovate, serrate, acuminate, smooth, dark green, $1\frac{3}{4}$ -3 in. wide, $2\frac{1}{2}$ -4 in. long, petiole $\frac{1}{4}$ in. long.

Flower semidouble or full double, 4 in. wide, rich scarlet crimson, with darker eye, stamen column single or divided, peduncle $4\frac{1}{2}$ in. long, bracts 5-7, short, green, petals notched at tip. Does not seed or cross.

498 (Common Double Red, large "Brilliantissimus"). Introduced.

Very vigorous, freely branching, dense foliage, gray bark, green on twigs.

Leaves ovate, bluntly dentate or crenate, smooth, shiny, dark green, 2-4 in. wide, 3-6 in. long, petiole $1\frac{1}{2}$ in. long.

Flower full double, 5 in. wide, rich crimson-vermilion, with darker eye, peduncle 2 in. long, bracts 5, green, appressed, calyx spreading. Occasionally seeds. May be used for crossing.

499 (Common Single Red). Introduced.

Vigorous, profusely branching, commonest variety in hedges, light gray bark, greenish on twigs.

Leaves ovate, dentate, acuminate, cordate at base, slightly pubescent beneath, 2-4 in. wide, $3-4\frac{1}{2}$ in. long, petiole $1-2\frac{1}{2}$ in. long.

Flower $4\frac{1}{2}$ in. wide, uniform deep scarlet-crimson, with darker crimson eye, stigmas darker crimson, column pale crimson, $3\frac{1}{2}$ in. long, peduncle pubescent 4 in. long, bracts 6, green, appressed. Rarely seeds. Has been used in crossing.

501 (Copper Leaf). Introduced.

Dwarf, smooth, light gray bark, red twigs, freely branching.

Leaves lanceolate, sparingly dentate, smooth, shiny, bronzed, $1\frac{3}{4}$ in. wide, $3\frac{1}{2}$ in. long, petiole 1 in.

Flower 4 in. wide, crimson scarlet, veins and band near throat paler, deep crimson eye, column crimson $2\frac{1}{2}$ in., peduncle 2 in. long, bracts 7, narrow, bronze, spreading.

502 (Coral, *H. schizopetalus*). Introduced.

Tall, numerous slender branches, bark dark gray, brownish twigs, sparse foliage.

Leaves lanceolate or ovate, serrate or entire, smooth, dark green, $\frac{1}{2}$ - $1\frac{1}{2}$ in. wide, $1\frac{1}{2}$ -3 in. long, petiole $\frac{3}{4}$ in.

Flower $2\frac{1}{2}$ in. wide, petals finely divided, strongly recurved, dull crimson, fringed with yellow and whitish, column slender, pendulous, 3 in. long, stigmas minute on slender branches, peduncle $3\frac{1}{2}$ in., bracts none or abortive. Calyx narrow. Much used as male parent.

503 G. P. W. (Fair Harvard). Parents: Hassinger X Beatrice.

Slow growth, freely branched, medium profuse bloomer, light gray bark, brownish twigs.

Leaves ovate, dentate, acuminate, smooth, shiny, $2\frac{1}{4}$ -4 in. wide, $2\frac{3}{4}$ - $4\frac{1}{2}$ in. long, petiole 1 in.

Flower $5\frac{1}{2}$ in., deep crimson scarlet, large dark crimson eye, wavy petals, column $3\frac{1}{2}$ in. long, stigmas deep crimson, peduncle $2\frac{1}{2}$ in., bracts 6-8, green, spreading. Not self seeder; used as male parent.

504 (Hakalau Red). Native.

Large tree, dark brown bark, green on twigs.

Leaves ovate or lanceolate, serrate, smooth, dark green, $\frac{3}{4}$ -2 $\frac{1}{4}$ in. wide, 1 $\frac{1}{2}$ -4 $\frac{1}{4}$ in. long, petiole $\frac{1}{8}$ -1 $\frac{1}{2}$ in.

Flower 2 $\frac{1}{2}$ in., wide, uniform scarlet throughout, filaments short, column 2 in., peduncle 1 $\frac{1}{2}$ in., bracts 6, very narrow, green. Not self seeding; used as male parent.

505 G. P. W. (Mother Wilder). Parents: Mrs. Hassinger X Beatrice.

Very vigorous, profusely branched, good foliage, dark gray bark, green twigs.

Leaves ovate or 3-lobed, entire or serrate, smooth dark green, 2-3 $\frac{1}{2}$ in. wide, 2 $\frac{3}{4}$ -4 in. long, petiole 1 $\frac{1}{2}$ in. long.

Flower 7 $\frac{1}{2}$ in. wide, rich crimson-magenta, blackish-crimson eye, column curved upward, 4 $\frac{1}{4}$ in. long, peduncle 3 $\frac{1}{2}$ in. long, bracts 5-8, long, green, spreading. Not self seeder.

506 (Mrs. Hassinger). Introduced.

Vigorous spreading growth, smooth gray bark, green on twigs.

Leaves lanceolate, ovate or lobed, serrate, smooth, dark green, 1-2 in. wide, 1 $\frac{3}{4}$ -2 $\frac{3}{4}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower 6 in. wide, crimson red with blackish crimson eye, 3 in. wide, column crimson 4 in. long, peduncle 2 in. long, bracts 5 or 6, short, spreading, green. Not self seeder; crosses readily.

507 (Oahu Red). Native.

Erect, strong growth, dark gray bark, green twigs.

Leaves elliptical or ovate, crenate, smooth light green, 1 $\frac{1}{2}$ -3 in. wide, 3-6 in. long, petiole 1 in.

Flower 3 in. wide, pure scarlet, flat, column crimson 1 $\frac{1}{2}$ in. long, peduncle 1 $\frac{1}{2}$ in. long, stigmas small, crimson, spreading, bracts 8, green, spreading calyx wide. Seeds and crosses.

508 (Superba). Introduced.

Strong growth freely branching, good foliage, dark bark, brownish green twigs.

Leaves ovate, dentate, acuminate, pubescent beneath, 1 $\frac{3}{4}$ -2 $\frac{1}{4}$ in. wide, 3-3 $\frac{3}{4}$ in. long, petiole $\frac{3}{4}$ in. long.

Flower 4 $\frac{1}{2}$ in. wide, rich scarlet-crimson with darker eye, petals wavy and recurved, column declined 2 $\frac{3}{4}$ in. long, peduncle 3 in., bracts 5, green, spreading. Free seeder and crosses readily.

509 (Wilhelmina Tenney). Introduced by Mrs. E. D. Tenney.

Growth like "Coral," light gray bark, brownish twigs, sparse foliage.

Leaves ovate or lanceolate, serrate, shiny, smooth, 1 $\frac{1}{2}$ -2 in. wide, 2-3 $\frac{1}{2}$ in. long, petiole $\frac{1}{2}$ in. long.

Flower 4 $\frac{1}{2}$ in. wide, petals recurved, notched, wavy, deep crimson-carmine, deeper veins and throat, column slender, 4 in. long, stigmas far exerted, small, 3 in. long, bracts 6, very short, green. Neither seeds nor crosses.

510 W. M. G. Parents: Ah Pio X Common Double Red.

Low straggling growth, pendulous branches, sparse foliage, light bark, green twigs.

Leaves lanceolate, entire or sparingly toothed, smooth, $1\frac{1}{2}$ - $2\frac{1}{4}$ in. wide, $4\frac{1}{2}$ in. long, petiole $1\frac{3}{4}$ in.

Flower 5 in. wide, scarlet-crimson, white veins, white near throat, deep crimson eye, column $2\frac{1}{2}$ in. peduncle $1\frac{1}{4}$ in., bracts 6, green, spreading. Free seeder.

W. M. G. 15 (same cross) has low, erect growth, leaves $1\frac{1}{2}$ -2 in. wide, $3\frac{1}{2}$ - $4\frac{3}{4}$ in. long, petiole 2 in.

Flower 5 in. wide, more scarlet admixture.

W. G. M. 9 (same cross). Strong growth, spreading branches; leaves lanceolate or elliptical, smooth, $1\frac{1}{2}$ -2 in. wide, 2-4 in. long, petiole 1 in.; flower 5 in. wide, medium crimson pink, darker veins, darker on one edge of petals, small crimson eye. Seeds freely, profuse bloomer.

513:1 (A. G. 52). Parents: Cleghorn Red X Semidouble Fijian.

Tall whip-like growth, light bark, red twigs.

Leaves ovate, dentate, smooth, dark green, $2\frac{3}{4}$ - $3\frac{1}{2}$ in. wide, $3\frac{3}{4}$ - $5\frac{1}{2}$ in. long, petiole 3 in. long.

Flower 5 in. wide, scarlet-carmine, deep crimson eye, column scarlet 3 in. long, bracts 5, green, upright.

516 (Cleghorn Red). Introduced by A. S. Cleghorn.

Strong, freely branched, drooping branches, dark gray bark, green twigs.

Leaves ovate, dentate, smooth, dark green, $1\frac{1}{2}$ - $2\frac{1}{2}$ in. wide, $2\frac{1}{2}$ - $3\frac{1}{4}$ in. long, petiole $\frac{3}{4}$ in. long.

Flower 6 in. wide, pure rich scarlet, deeper eye, column scarlet $3\frac{1}{2}$ in. long, peduncle $2\frac{1}{4}$ in. long, bracts 5-7, green, upright.

518 G. P. W. (Ally Hatch). Parents: Beatrice X Ah Pio.

Good growth, freely branching, light bark, brownish twigs.

Leaves lanceolate or ovate, entire or serrate, acuminate, smooth, $1\frac{1}{2}$ - $2\frac{1}{4}$ in. wide, $3\frac{3}{4}$ in. long, petiole $1\frac{1}{2}$ in.

Flower 6 in. wide, scarlet with crimson tinge, deep crimson eye, column $3\frac{1}{2}$ in. long, peduncle 2 in. long, bracts 6 or 7, short, green, erect. Not self seeder. Crosses freely.

519 (Small Double Red). Introduced.

Tall, upright, slender branches, light bark, brownish twigs.

Leaves ovate, serrate, acuminate, smooth, dark green, $1\frac{1}{2}$ - $2\frac{1}{4}$ in. wide, $2\frac{3}{4}$ -4 in. long, petiole $1\frac{1}{2}$ in.

Flower 4 in. wide, double, petals scarlet-crimson, darker on claws, peduncle 3 in., bracts 6 or 7, green, erect. Not self seeder.

523:1 C. M. C. Parents: (?)

Slow growth, freely branching, light bark, green twigs.

Leaves ovate, cordate, dentate, smooth, $2\frac{3}{4}$ - $3\frac{3}{4}$ in. wide, 3-5 in. long, petiole $1\frac{1}{2}$ in. long.

Flower $7\frac{1}{4}$ in. wide, scarlet-crimson, deep crimson eye, paler around eye, column $3\frac{1}{2}$ in. long, curved upward, 2 in. peduncle, bracts 5-7, green ascending. Not self seeding.

526:1 C. M. C. (Harriet Hatch). Parents: (?)

Low growth, freely branching, good foliage, light bark, brownish twigs.

Leaves orbicular, incised, or 3-lobed, smooth, shiny, $2\frac{1}{2}$ -4 in. wide, $2\frac{3}{4}$ in. long, petiole 2 in. long.

Flower $4\frac{1}{2}$ in. wide, orange-scarlet, pale crimson-pink eye, column whitish, 3 in. long, peduncle $1\frac{3}{4}$ in. long, bracts 5, wide, green, spreading. Not self seeder.

530 (*H. kahilii*). Native.

Tree attaining a height of 30 ft., found on Kauai, described by C. N. Forbes.

Leaves elliptical or obovate, crenate-serrate, rough-pubescent, $1\frac{1}{4}$ - $1\frac{3}{4}$ in. wide, 2-3 in. long, petiole $\frac{1}{4}$ in. long.

Flower $3\frac{1}{2}$ in. wide, scarlet, pubescent on outside, column 2 in. long, peduncle $\frac{1}{2}$ in. long, calyx pubescent.

An apparent variety of this species or of *H. kokio* found on Kauai by J. M. Lydgate has a crimson-pink flower and leaves more like those of *H. kokio*.

538 (Haena Red). Native.

Low bush, dark bark, green twigs, sent from Kauai by Mrs. Grace Rice.

Leaves lanceolate or ovate, smooth, thick, serrate, $1\frac{1}{2}$ in. wide, $2\frac{1}{2}$ in. long, petiole $\frac{3}{4}$ in. long.

Flower 2 in. wide, brilliant orange-scarlet, column orange, 2 in. long, stigmas sharply recurved, calyx large, red-margined, bracts 8 or 9, narrow, red.

561 (Kipu Red). Native.

Vigorous growth, light bark, reddish twigs, excellent foliage.

Leaves broadly lanceolate, entire or crenate, smooth, shiny, $2\frac{1}{4}$ in. wide, 3-5 in. long, petiole 1 in. long.

Flower 4 in. wide, uniform scarlet with crimson tinge throughout, petals narrow, recurved, column $2\frac{1}{4}$ in. long, stigmas spreading, calyx teeth long, bracts 6 or 7, green, erect.

[Bull. 29]



Hibiscus, variety Velvet Red.



Hibiscus, variety Coral.



Hibiscus, variety Oahu Red.



Mabel Owen Wilson
1913.

Hibiscus, variety Mrs. Hassinger.



Hibiscus, variety Large Double Red.